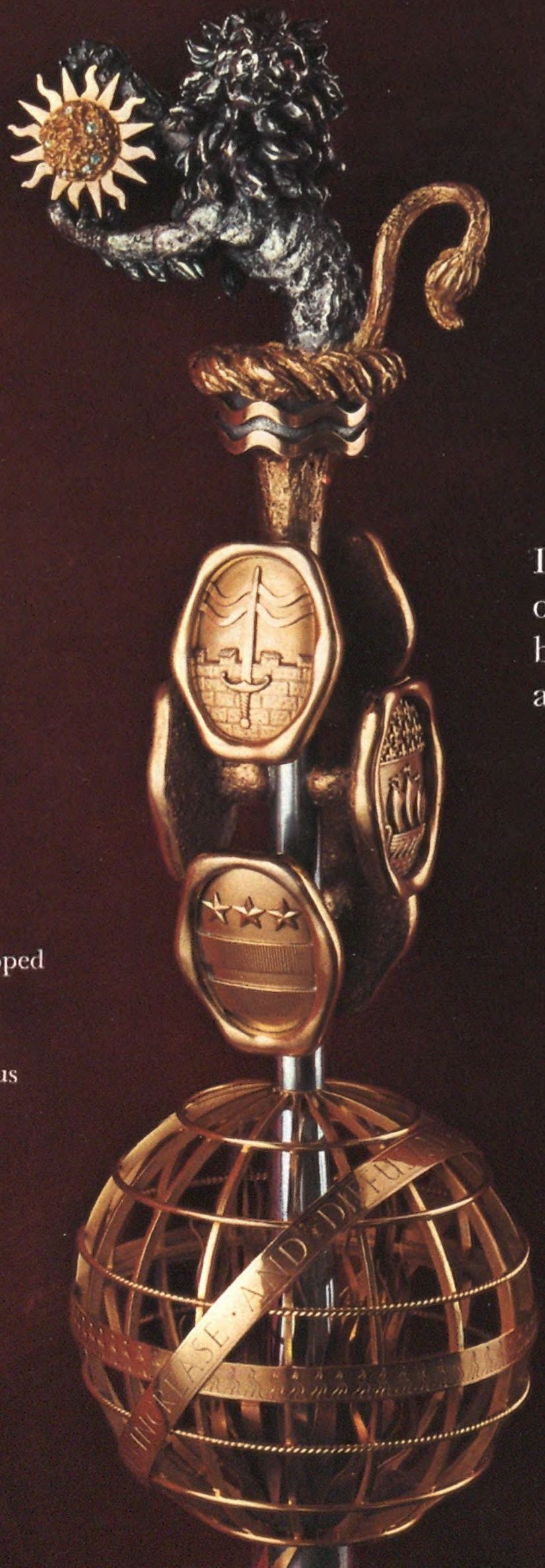
January 1976

Smithsonian



Dramatic recovery of James Smithson's bones and arrival at the Institution (p. 30)

Smithsonian mace is topped by a lion from Smithson family crest. This staff (p. 36) flanks sarcophagus

The woman I love doesn't wish
she was twenty or pretend she is thirty because
whatever she does, she does better at forty.

A diamond is forever.

A gift of diamonds need not be expensive. Your jeweler can show you many exciting pieces starting as low as $200. De Beers Consolidated Mines, Ltd.

What's the best thing to do with life insurance dividends?

If your life insurance pays dividends, they can be used in many ways. And one way might be better for you than another.

For instance, if you're young with a growing family, you might use these dividends to increase the amount of your insurance protection. Or, if you have trouble saving, you can leave them alone and let them accumulate at interest. They can also be used to reduce your premiums, or be taken in cash. Which way is best for you depends on your situation. And you can change the way you take them as often as you like.

Most life insurance policies are flexible enough to be changed whenever your personal situation changes. How you take your dividends is just one of the options you always have. Two other important things you might consider are your settlement and beneficiary options.

How your policy pays off

You can select the way your beneficiary will be paid—lump sum, payments over a certain period, payments that will last your beneficiary's lifetime, or whichever settlement option best suits your family's needs. You can also, at retirement, use the cash value of your policy to provide a lifetime income for yourself.

Whom your insurance will pay

You might want to review your policies to see if the beneficiary arrangements meet your current wishes. Remember, a change in your will does not change your life insurance beneficiary.

Ask your agent

If you want to make one of these changes, or if there is anything you don't understand about your options, talk to your life insurance agent, a trained professional who is always ready to help.

It's your life insurance.
We want you to understand
what you're paying for.

Prudential

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Smithsonian

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The Eagle Has Landed

For over a year now, Gunther Granget, one of the world's most talented sculptors, has been working on a new sculpture at the Hutschenreuther Studio in Selb, Bavaria. It is entitled "Freedom in Flight" and is of a magnificent American Bald Eagle.

We at Armstrong's feel that the American Eagle will be one of the great classics in porcelain. There is no way to adequately describe this majestic sculpture with words alone. You simply must see it to appreciate Gunther Granget's talent as a master sculptor and to absorb the beauty he has been able to achieve in the permanency of porcelain.

"Freedom in Flight" has been created in a numbered edition of 200 sculptures. Each of the sculptures is individually signed and numbered and will be available for a limited time only. The The American Bald Eagle, which is Gunther Granget's tribute to our great nation, symbolizing the strength, courage, and love of freedom of the American people, can now be yours and is currently available at Armstrong's.

As a service to you, our patrons, Armstrong's provides insured delivery service anywhere within the United States, at no additional charge. Your inquiries are invited.

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The amazing Mercedes-Benz 450SE. Take a good, close look. You've never seen anything like it.

Here's a walk-around checklist for one of the most important sedans ever engineered by Mercedes-Benz – or by anyone else. It'll help you see, firsthand, why the 450SE defies imitation ...and why it deserves your closest consideration.

1.
Start here. Look at the trunk space. An uncluttered 18.2 cubic feet. Spare tire is stored out of the way, flat under the floor, where it can also serve as an additional impact-absorbing device.

2.
Heated rear window. Automatic timer prevents wasted energy. Tinted glass all around. Standard equipment.

3.
Rain channels use airflow to divert rainwater from side and rear windows.

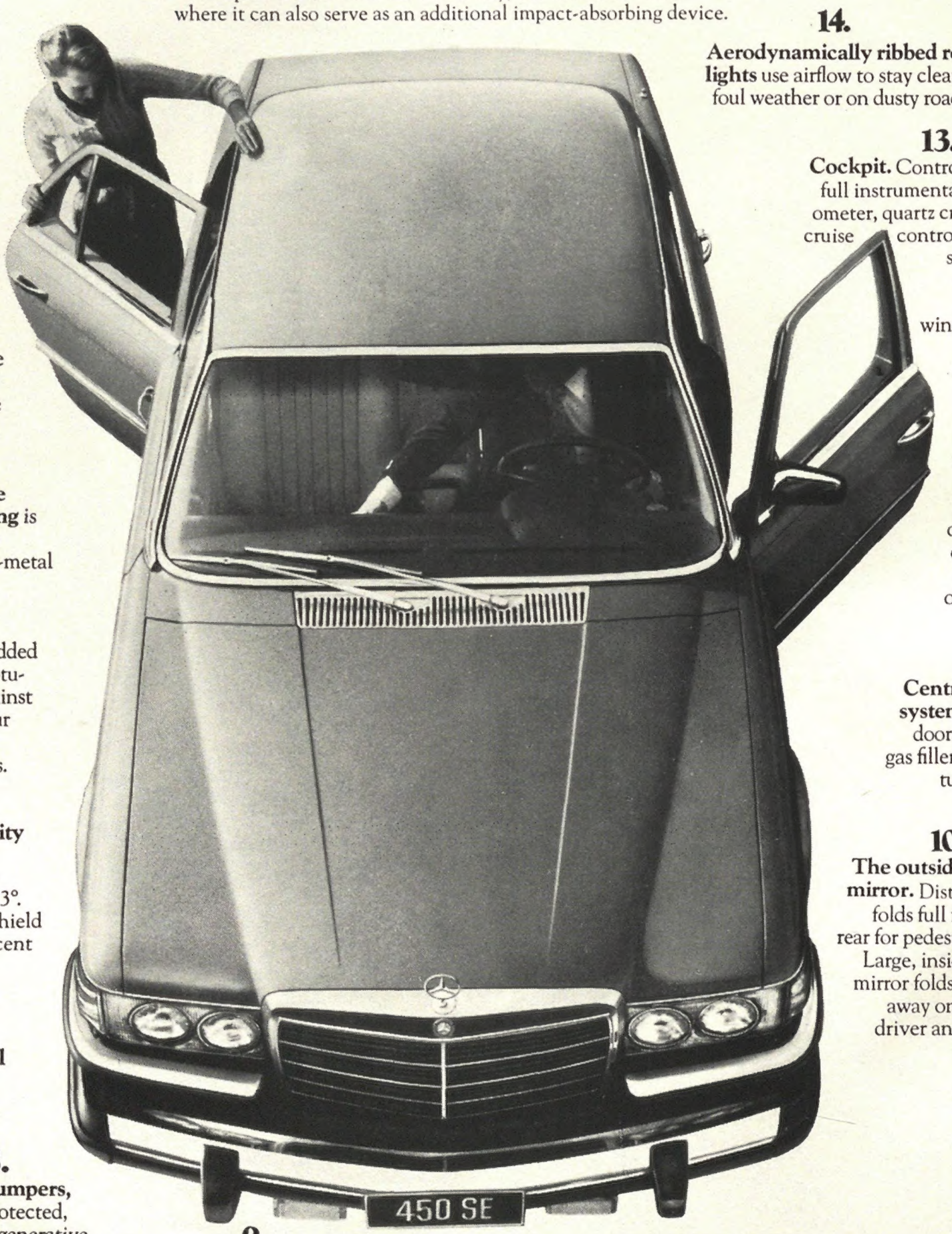
4.
Chrome strip/side protection molding is rubber-mounted to eliminate metal-to-metal contact.

5.
Interior is fully padded for safety and sumptuousness. Sealed against noise and heat. Four different sound-absorbing materials.

6.
Maximum-visibility windshield. All-around visibility in the 450SE totals 313°. Overlapping windshield wipers clear 73 percent of the entire windshield.

7.
Steel-belted radial tires. Standard equipment.

8.
Safety bumpers, rubber protected, hydraulic-regenerative. Front and rear.



9.
Halogen fog lights. Standard equipment.

10.
The outside rearview mirror. Distortion-free, folds full forward *and* rear for pedestrian safety. Large, inside rearview mirror folds and breaks away on impact for driver and passenger safety.

11.
Central locking system. Locks all doors, trunk *and* gas filler port at the turn of a key.

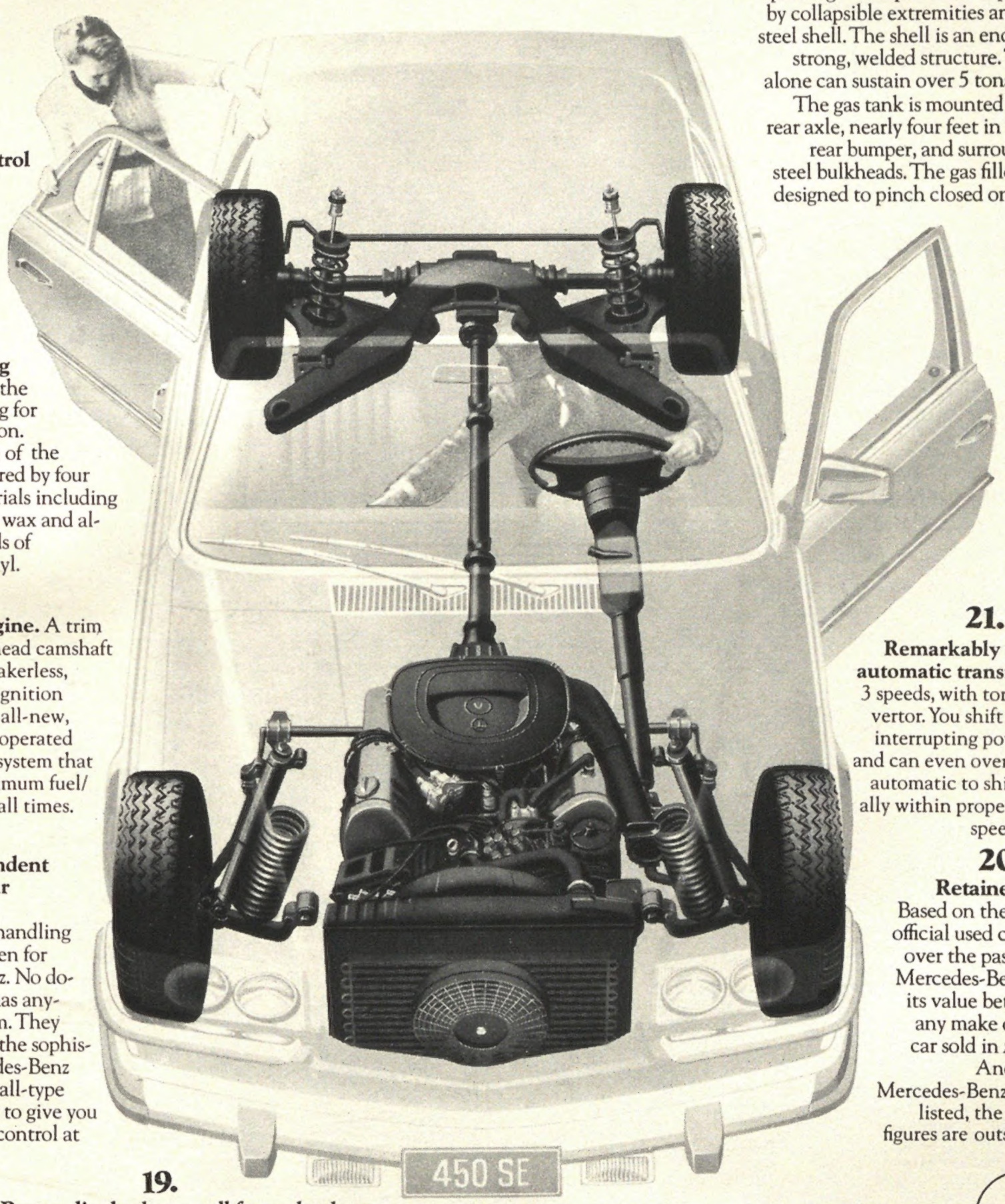
12.
Safety cone door locks. So strong that one of them can support the weight of the entire 450SE.

13.
Cockpit. Control panel has full instrumentation. Tachometer, quartz crystal clock, cruise control, AM/FM stereo radio, electrically operated windows are all standard equipment.

14.
Aerodynamically ribbed rear lights use airflow to stay clear in foul weather or on dusty roads.

The amazing Mercedes-Benz 450SE. Now, look at 8 things you don't see. You've still never seen anything like it.

You'll experience and appreciate some of them during your test drive. (Your Dealer can arrange it at your convenience.) The others are special Mercedes-Benz bonuses. All of them are standard equipment.



15.
Automatic Climate Control maintains a preselected temperature; dehumidifies, heats and cools.

16.
Undercoating extends up to the rocker molding for extra protection. The underside of the 450SE is buffered by four different materials including anti-corrosion wax and almost 24 pounds of plasticized vinyl.

17.
A unique engine. A trim 4.5 liter, overhead camshaft V-8 with a breakerless, transistorized ignition system and an all-new, mechanically operated fuel injection system that maintains optimum fuel/air mixture at all times.

18.
Fully independent front and rear suspension. They set new handling standards—even for Mercedes-Benz. No domestic sedan has anything like them. They combine with the sophisticated Mercedes-Benz recirculating ball-type power steering to give you extraordinary control at all times.

19.
Power disc brakes on all four wheels. The brakes are ventilated—then further cooled by special turboblades. They are designed to stop you smoothly, securely time after time—without disconcerting fade.

22.
Safety advances. The entire passenger compartment is protected by collapsible extremities and a rigid steel shell. The shell is an enormously strong, welded structure. The roof alone can sustain over 5 tons weight. The gas tank is mounted over the rear axle, nearly four feet in from the rear bumper, and surrounded by steel bulkheads. The gas filler pipe is designed to pinch closed on impact.

21.
Remarkably smooth automatic transmission, 3 speeds, with torque convertor. You shift without interrupting power flow and can even override the automatic to shift manually within proper engine speed ranges.

20.
Retained value. Based on the average official used car prices over the past 5 years, Mercedes-Benz holds its value better than any make of luxury car sold in America. And among Mercedes-Benz models listed, the 450SE's figures are outstanding.

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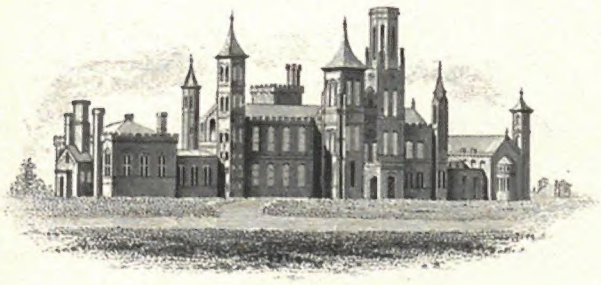
Secretary Ripley's comments

The view from the castle



As Bicentennial year begins, Americans may want to renew old ideals and thus reinforce their effort to achieve fraternity

Hurrah for '76. For years we've been planning the celebration of the 200th birthday of the longest recorded experiment in social democracy. Now it is here. So what about it?

We're generally proud to be Americans, to be among the best-fed and best-clothed nations of the world, to maintain a greater degree of liberty for more people than most other countries.

As for equality, we continue to move toward it—although the human condition today sometimes seems to make that goal as distant as in 1776. It is certainly the most ephemeral of Man's ambitions.

How about fraternity, the third stage of ideal democracy as defined by French revolutionaries? Alas, fraternity seems to have escaped us. Bigotry and envy are still as common in human affairs as they were in 1776. The evident decline in individual faith in the past generation continues to erode what should exist in all of us—a sense of cooperation out of which should come a capacity for serenity, honesty, charity and civility.

Thinking of the Bicentennial several years ago, I remarked that Americans would probably merely celebrate in 1976 "with speeches, band concerts, hot dogs, a day at the beach or at our own Folk Festival, and end up with fireworks." Perhaps this is enough. It does not seem to be part of our national character to celebrate thus and at the same time speak words or evoke thoughts which would live on, elevating the mind and enriching our sense of purpose. The perorations from bunting-draped platforms across the land this coming summer are likely to drift away like summer mist. If another Gettysburg Address should emerge as a surprise, so much the better.

How then to generate ideas? To celebrate our 200th, I believe we should renounce the concept of personal irresponsibility made fashionable by the recent psychological theories of permissiveness and commence thinking against the trends. There is one school of thought that holds big "solve-all-our-problems" government is good for us. Rubbish. There is another trend that promotes self-gratification as the highest ideal. Folly. There is a long-standing assumption that everyone in this country should be educated. Utopian, to say the least.

But suppose universal education is achievable? To be educated is to develop a sense of public responsibility, to use this new skill to perceive the ethical responsibilities of knowledge. Given educational tools, one must accept a moral obligation to preserve the humanist tradition. The acquiring of learning is a continuous process, for the educated man is always the first to acknowledge his own ignorance. Nearly six years ago in the first issue of SMITHSONIAN (April 1970) I said that "The salvation of the world today lies neither in existentialism nor in economic development, but rather in a subtle blending of applied research—applied technology, if you will—and humanism."

Let us dedicate this Bicentennial year then, humbly, as educated Americans, to rediscovering our ideals and reinforcing our sense of fraternity.

S. Dillon Ripley

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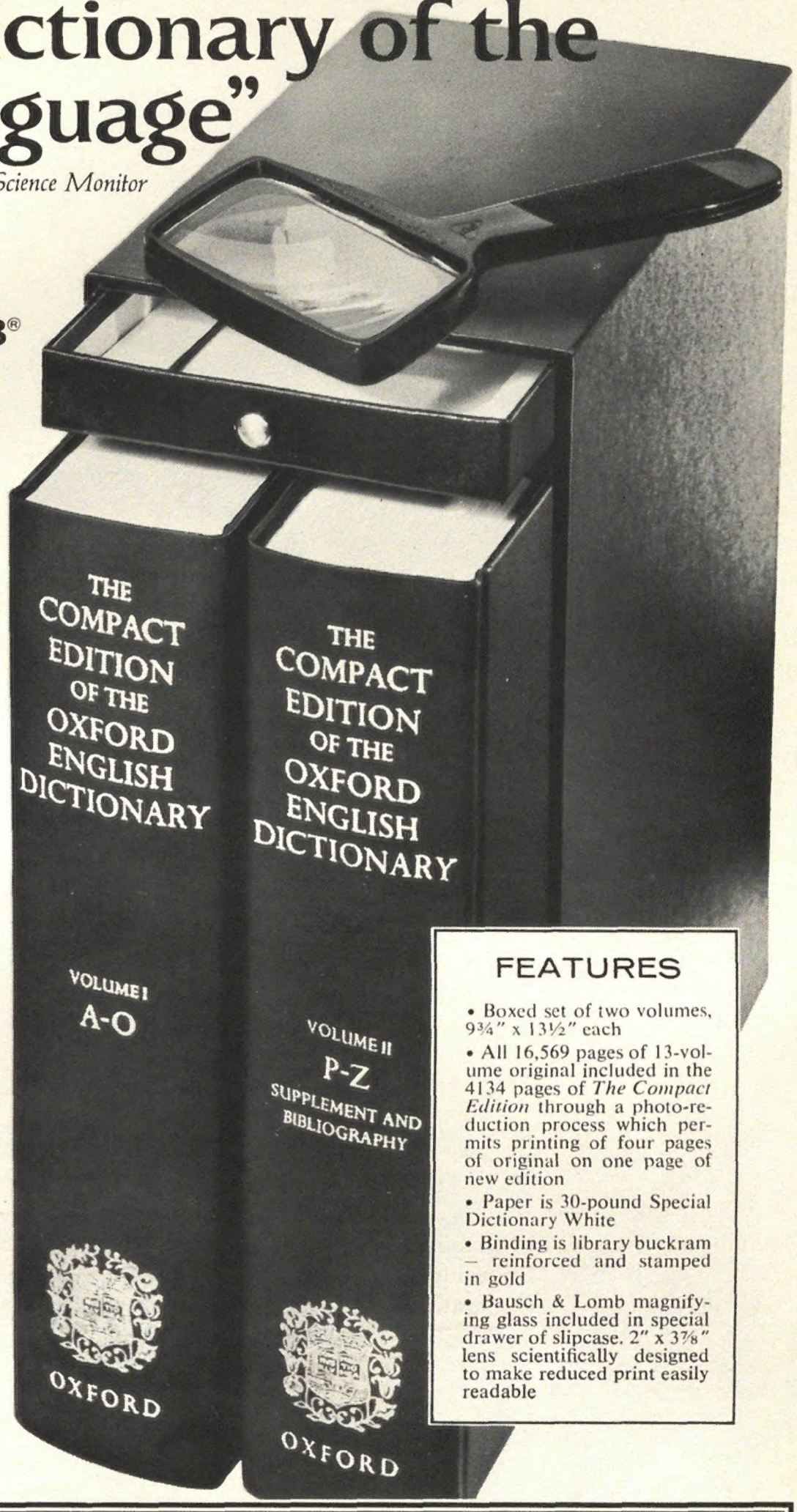

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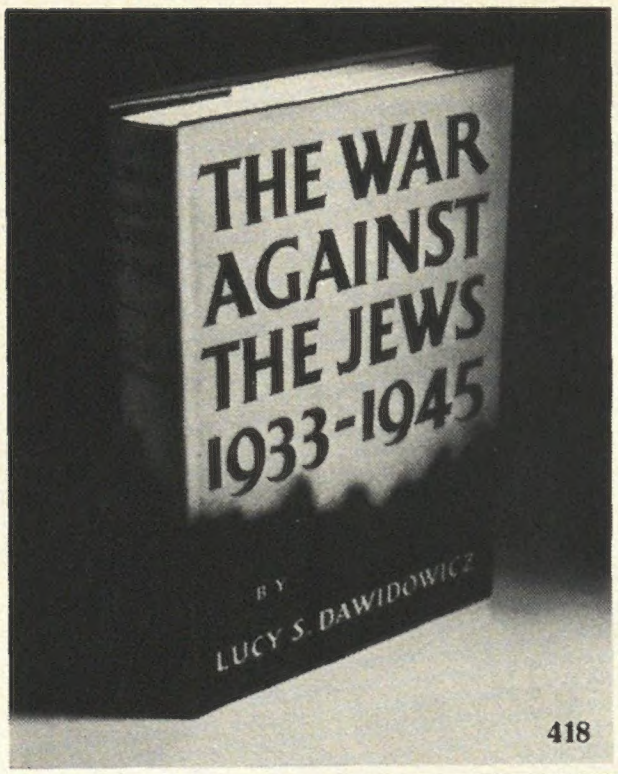

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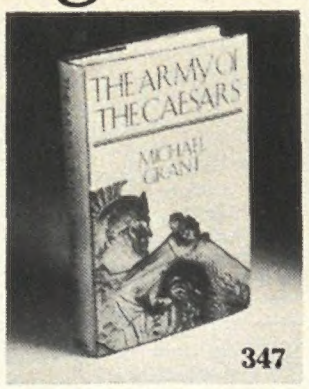

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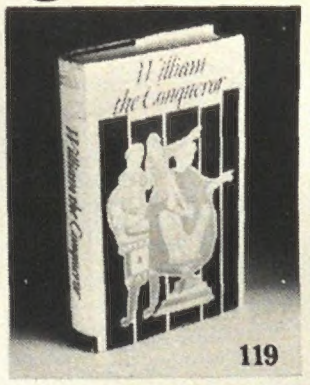

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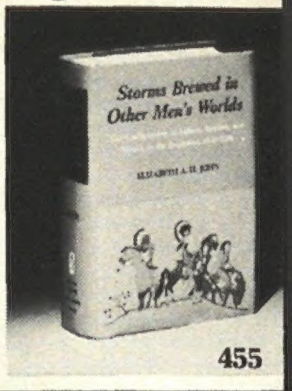

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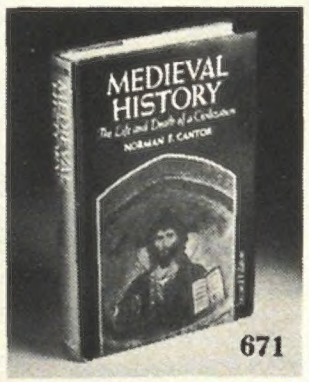

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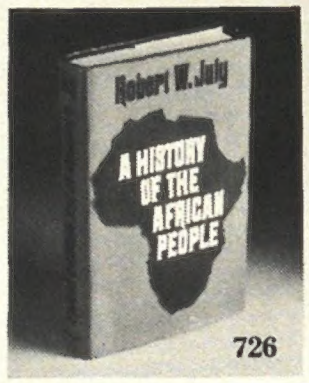

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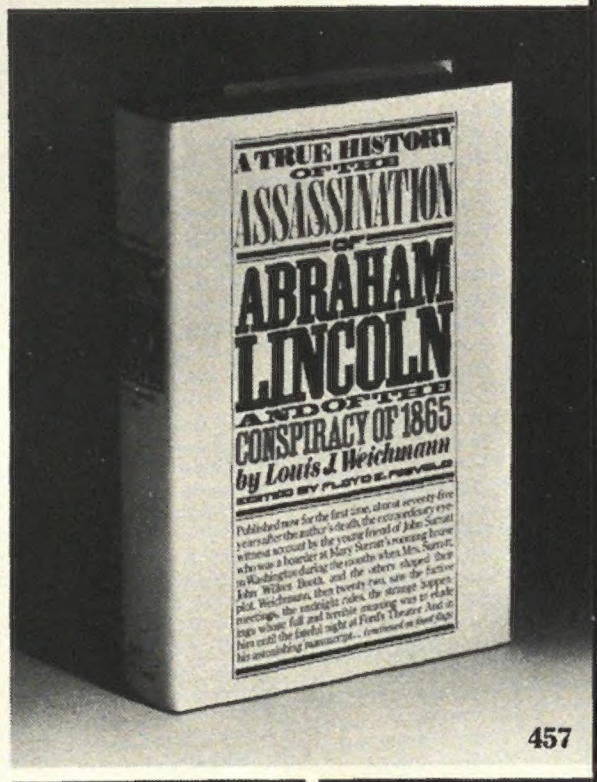
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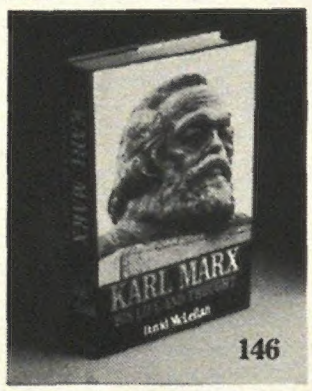

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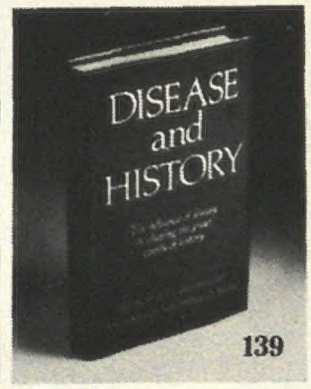

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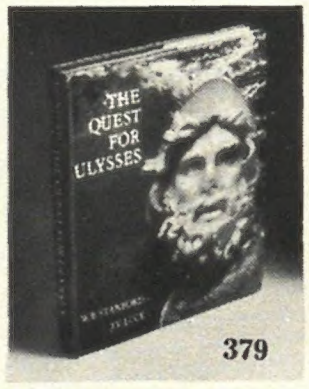

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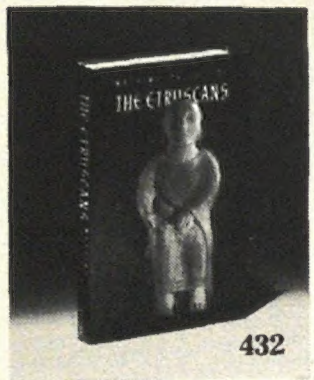

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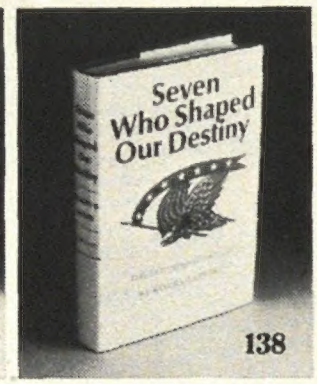

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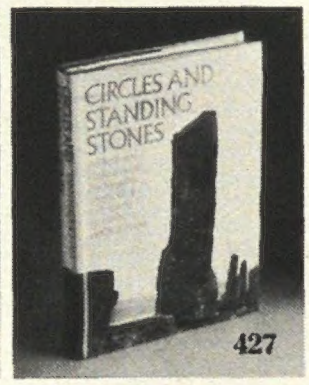

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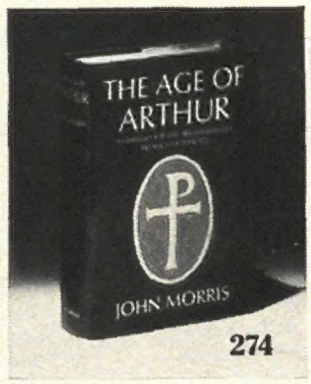

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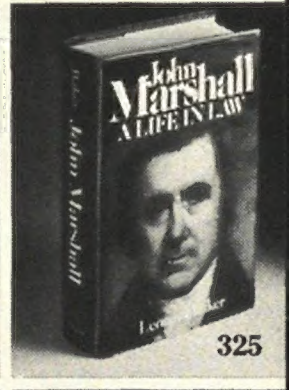

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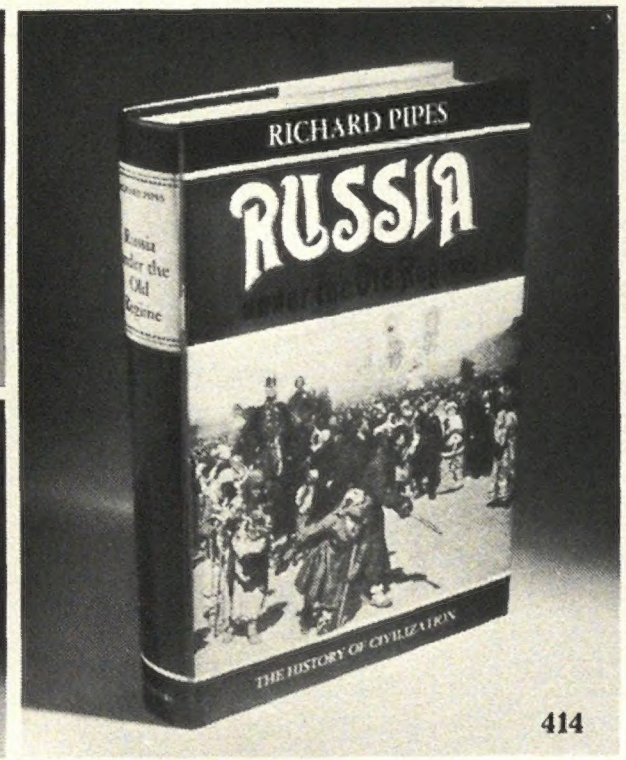

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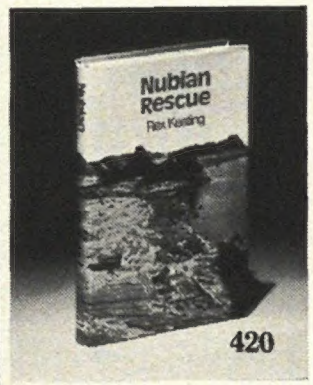

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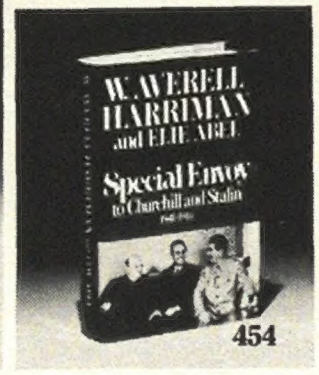

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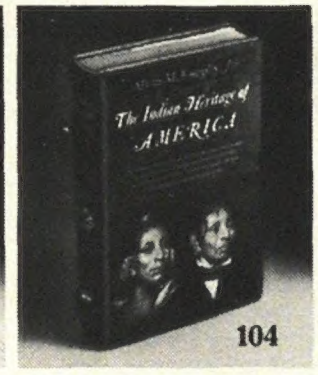

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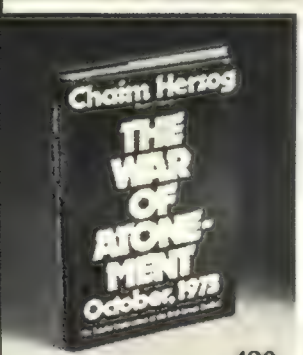

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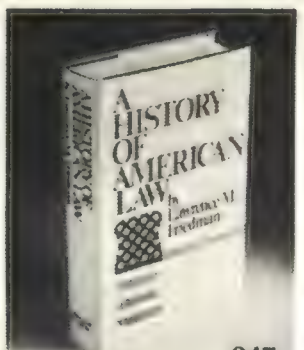

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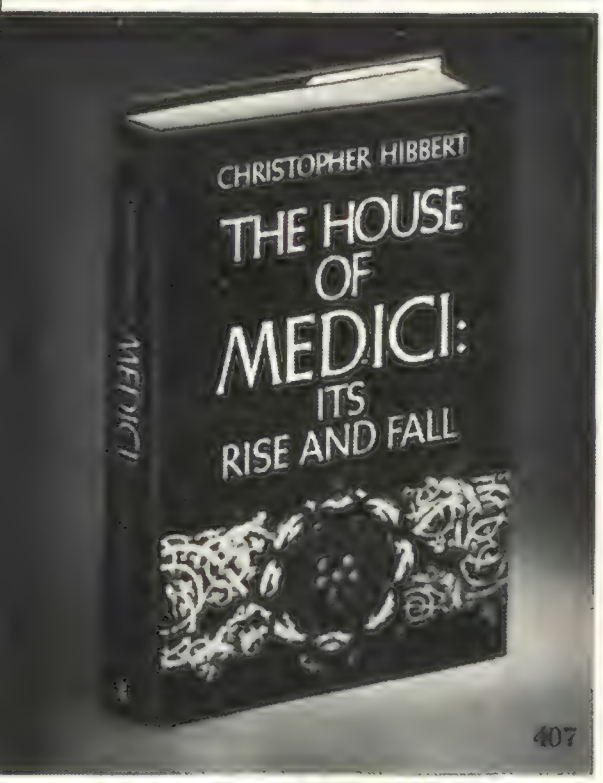

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Phenomena, comment and notes

Muddying the ancestral waters, music before technology, the importance of pupils and swimming pool science

To the already countless sub-subdisciplines of science, there has been added yet another: balneology. Balneology is, according to *New Scientist* (Volume 67, Number 966), the science of swimming pools. One can be forgiven for not having thought before that swimming pools need their own department in the halls of the academies, but, given the problems of heating them and cleaning them, they apparently do.

Like any infant science, balneology offers up some pretty unpromising ideas. For example, writes John Dawes, one of the field's few practitioners, a way to keep a pool from losing heat is to cover the entire surface with Ping-Pong balls.

The eye of the beholder

About a decade ago a psychologist at the University of Chicago reported in *Scientific American* that when you become interested in something, your pupils dilate. When you are repelled by something, they contract. Now the psychologist, Eckhard H. Hess, is back again (Volume 233, Number 5) with additional information from his pupillometrics.

It now seems that the size of your pupils can affect the attitude of someone observing you. Dr. Hess uses two photographs of a person that are identical in every particular except the pupils: On one the eyes are retouched to show large pupils, on the other, small pupils. Men almost invariably choose a woman's photograph with large pupils as the most attractive (though they don't know why). And vice versa: women like large-pupiled men.

Details abound. Men also prefer large-pupiled men but women, curiously, show more interest in small-pupiled women. Infants smile more readily at people with large pupils. In absolute size, children have larger pupils than adults, perhaps an evolutionary adaptation that helps insure parental affection and care. In general, the tendency is to associate positive attributes with large pupils and negative attributes (such as selfishness) with small pupils.

The next question for research may be to find out if, in fact, pupil size is a true guide to a person's character, and not just one's attitude about the person.

Surgical success

A widely circulated news story about a year ago concerned Siamese twins from the Dominican Republic. They were brought to Children's Hospital of Philadelphia, where Surgeon-in-Chief C. Everett Koop separated them.

The twins recently returned to Philadelphia for their first annual checkup. Both were found to be in excellent physiological health, but the doctors were concerned about their emotional health since they had not been separated until they were one year old. According to *Medical World News* (Volume 16, Number 24), however, they passed the psychological tests with flying colors. A child psychiatrist at the hospital is quoted as saying that they are "bright, charming, engaging, happy and . . . intact."

Nevertheless, one of them still cries whenever she sees Dr. Koop (perhaps his pupils are too small) and the other one bit him on the hand.

The hard way

The National Aeronautics and Space Agency needs, from time to time, to know the volume of a human's body and so, with typical assiduousness, they have devised a means to accomplish it. It is an airtight chamber, according to *Chemistry* magazine (Volume 48, Number 9), into which the body in question is placed. A face mask provides air to breathe. The air volume in the chamber is then reduced a known amount by a piston. Infrasonic signals are fed into the chamber, and are

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Rank 4. Expect below-average performance.
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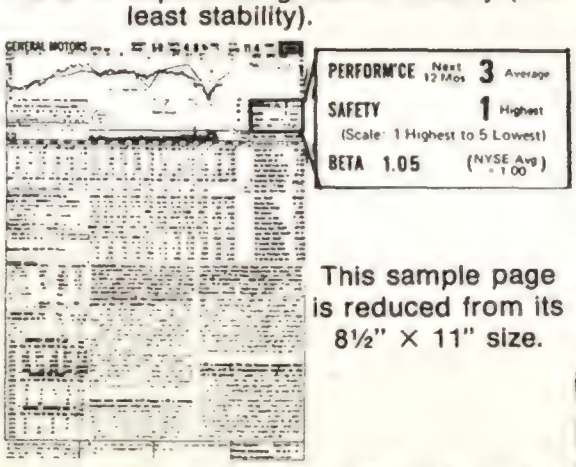
Rank 3. Expect both volatility and stability to be average.
Rank 4. Expect greater than average volatility (below average stability).
Rank 5. Expect the greatest volatility (the least stability).



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Our ancestors—all over

The general notion of human evolution is that some apelike creatures left the trees and eventually started moving around on two feet and became human. The common notion, further, is that this took place in Africa, and well it may have—though it could have been in India, since a number of apparent precursors to *Homo sapiens,* called *Ramapithecus,* have been found on the Asian subcontinent. In any case, it seems to have been a tropical phenomenon.

Not so fast, says Miklós Kretzoi of Budapest. In recent years a site in northeastern Hungary called Rudabánya has yielded a small treasure of anthropoid material, including what Mr. Kretzoi believes are three distinct forms. And one of these, called *Rudapithecus hungaricus,* seems to Mr. Kretzoi to be a lot closer to the direct line of human evolution than *Ramapithecus* of India or *Kenyapithecus* of Africa.

It is not however a case of parochial chauvinism, nor paleontological olympics. There is no suggestion that Hungary is *the* place where our direct ancestors evolved. What Mr. Kretzoi points out in *Nature* (Volume 257, Number 5527) is that the process of hominization did not occur in an isolated tropical population, but was an evolutionary trend that took place among a whole range of apelike creatures throughout the Afro-Eurasian landscape. The direct line to us, then, is even more obscure.

The ascent of Man

No doubt the discussion about which *pithecus* became *sapiens* will go on and on for years, but the general pattern of human evolution has been relatively clear ever since the Frenchman Lamarck opined in 1809 that the early progenitors of humankind walked upright before the large human brain developed. (Some doubt about this was raised by Piltdown

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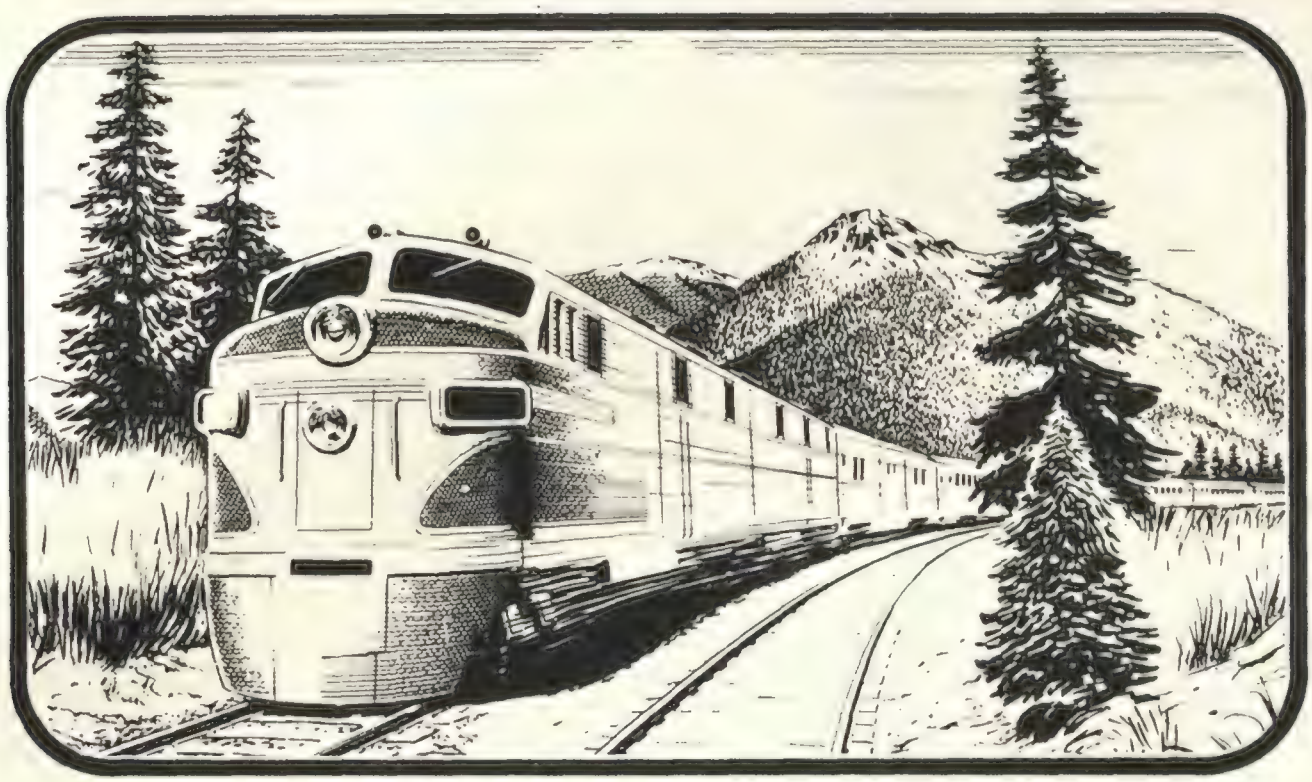

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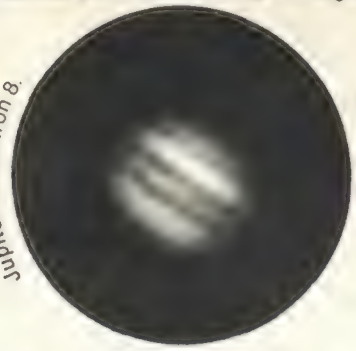

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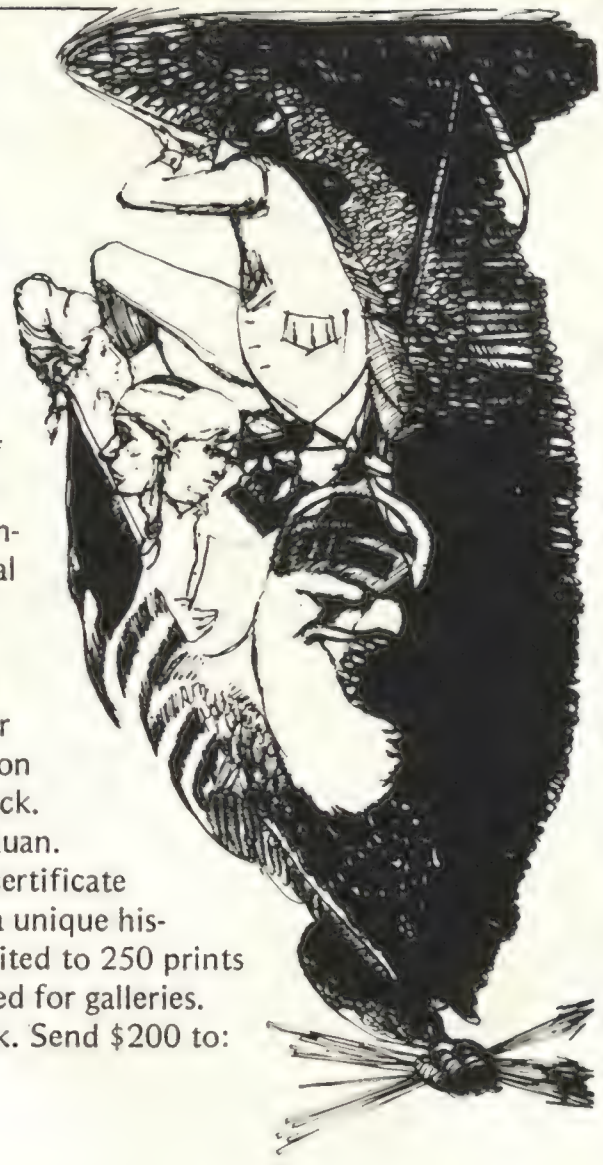

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man, but that, of course, proved to be a hoax).

Just in case there remains any further doubt about bipedalism and brain power, Henry M. McHenry, an anthropologist at the University of California at Davis, has pinned it all down quite precisely. He made an exhaustive analysis of hominid remains, both old and new, and his conclusions appear in *Science* (Volume 190, Number 4213). Hominids, he writes were definitely walking upright earlier than three million years ago (their gait may have involved a bit of hip-swaying), but they had relatively small brains. By two million years ago, there was a considerable range of brain sizes, with the average being greater than that of earlier hominids and getting close to modern Man. And it was just about the same time that other human traits emerged: tool manufacture, meat eating, shelter building and the sharing of food.

The sound of fusion

There is a lag between the discovery of a technology and its application in society. Generally, the lag has been getting shorter in recent decades. But now a new technology has found its way into popular culture before the technology has been proved feasible at all.

The technology is fusion, that much hoped-for means of producing power from deuterium, the heavy form of hydrogen that is abundant in sea water. The problem is to contain hydrogen plasma at extremely high temperatures for a certain period of time and at a certain density. According to *Chemical and Engineering News* (Volume 53, Number 45), a great step forward has been made at the Massachusetts Institute of Technology. Hydrogen confinement at some very high densities for "long" time periods at ten million degrees Celsius has now been accomplished—better by a factor of five than anything previously achieved. However, while this is a major advance, the density/confinement time will have to be increased by a factor of 10 or even 30 if fusion power is to become a reality.

Undaunted by this engineering problem, pop culture has taken fusion to its bosom. There is now what is called the fusion sound, one notes in the *Washington Post*, a marriage between jazz and (naturally) high energy rock and roll.

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The unwanted phone call

From time to time everyone has difficulty getting a telephone call through, and the industry spends a tremendous amount of time and money creating technology to make the system more efficient. But the real problem with the telephone is not that it doesn't work when one wishes, but that it works all too well when one wishes it wouldn't. Why is it that the phone rings at dinner time? Or consider: During the writing of the above three paragraphs, the telephone buzzed four times like an angry bee. None of the people on the other end of the line would have been so insensitive as to interrupt such an intense literary enterprise, had they only known they were interrupting. But there is no way provided by telephone technology to know that. For all of Ma Bell's politeness, the telephone is a fundamentally rude instrument.

Of course one can hire a secretary to say "He's not in the office," but if the he in question doesn't actually step out of the office every time the phone rings, this practice institutionalizes mendacity. Or one can buy an answering service and take the calls at one's leisure, but it seems unfair that, while paying monthly rent on the equipment, and charges for calls, one should pay even more to turn it off.

Of course, one can take the receiver off the hook and stuff it, swaddled in towels, into a drawer to muffle the angry sirens and clicks it emits at being forsaken. But it is courtesy we are talking about, not simply defense. Someone who dials a phone that is off the hook gets a busy signal (itself a pretty rude sound) and is encouraged to keep calling. No one has learned. Furthermore, taking the phone off the hook takes one out of reach of emergency calls.

What is needed, in fact, is a device put on every telephone as standard equipment—something nearly as simple as a light switch—that permits one to turn off the phone at one's whim. (And, no doubt, the wizards in the phone company could work out some circuitry whereby a real emergency call could jump over the switch.) The device should make a gentle sound—perhaps the tinkle of an old music box—that in due course would come to be universally understood to mean: "Thanks for calling, but I really just don't want to be bothered right now."

JAMES K. PAGE JR

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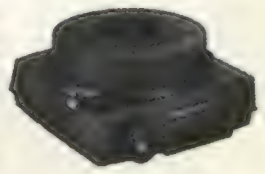

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Letters to the Editor

Colonial travel

Dear Sir: Travel in this part of Virginia has been no less harrowing an adventure than others described by Mary Musser in the November issue. The now-overland route from Alexandria to Fredericksburg, a distance of barely 50 miles, was traversed by water and by coach and required between four and eight hours.

Charles Dickens' description of his 1842 visit to this area, a combination of sarcasm, humor and scathing denunciation of the evils of slavery, probably was accurate. At the Aquia Creek landing he was greeted by the sight of a long line of coaches ready to carry passengers the final eight miles to Fredericksburg, which he described as follows:

". . . They [the coaches] may be likened to the car portion of the swings at an English fair; roofed, put upon axle-trees and wheels, and curtained with painted canvas. They are covered with mud from the roof to the wheel tire, and have never been cleaned since the day they were built." The road he described as "alternate swamps and gravel pits."

Ronald E. Shibley
Executive Director,
Historic Fredericksburg Foundation, Inc.
Fredericksburg, Virginia

Climate

Dear Sir: Henry Lansford's article on changes in climate was most interesting, but the example of no more ice skating on the River Thames because it has not frozen over in recent times more appropriately illustrates engineering advances than climatic variations.

The Thames in London froze in past centuries because the massive piers of the medieval London Bridge severely restricted the flow of water above the bridge, allowing the relatively slow-moving upper river to ice over in severe winters. The replacement of the bridge in 1831, coupled with deepening the ship channel in the lower Thames, now permits a rapid tidal flow through London. This flow is sufficient to prevent the modern River Thames from freezing over, even if present winters were far cooler than those of the 17th century.

Isabel Bullen
San Francisco, California

Dear Sir: In your article on climate there was a typographical error which put an incorrect new slant on my views. I am quoted about "mildly oscillating" atmospheric conditions, when my version was "wildly oscillating"—certainly conveying quite a different idea.

Helmut E. Landsberg
Director of Graduate Program of
Meteorology, University of Maryland
College Park, Maryland

Railroads

Dear Sir: From time to time something is published which catches the character of an industry. The history of railroading has had its share of these minor masterpieces from the folksong "I've Been Workin' on the Railroad" to the saga of "Casey Jones." In a more sophisticated manner, we find a gem in Jan Adkins' article, "In proper context passenger rail can be workable."

We have lifted the following line from your article for publication in our Amtrak NEWS, a publication that goes to all of our employees: "There are a thousand reasons why British Rail transport runs well, but the underlying reason may be nothing more than good manners."

Paul H. Reistrup
President, National Railroad Passenger Corporation
Washington, D.C.

Dear Sir: In Jan Adkins' article, he mentions waiting at Columbus for the B&O express to Cleveland. No way. Cleveland-Columbus passenger service was limited strictly to the New York Central. He also compounds an old inaccuracy by referring to "union-limited" time that a crew could

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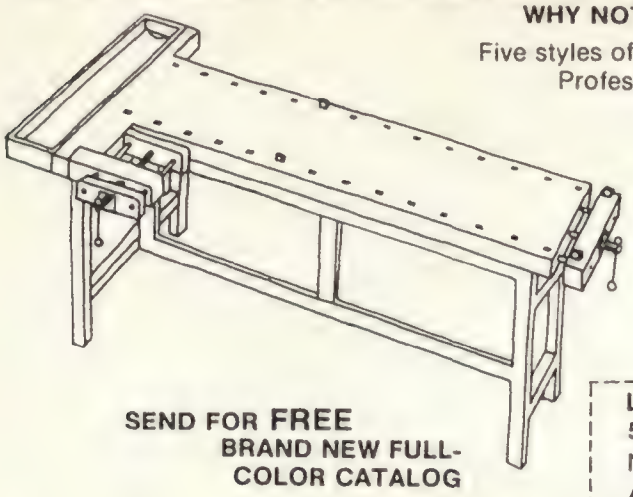

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Many home greenhouses are unattractive and badly designed. They are cheap enough, but they are often made with frames of bulky wood or crude galvanized steel, and covered with flimsy plastic. In a year or two they are an unsightly, unworkable mess.

But now, at last, there is a truly high-quality greenhouse, priced so low every home gardener can afford to own one.

Strong, Rigid Construction: The frame of the Burpee English Greenhouse is stressed aluminum, designed to last a lifetime, without maintenance of any kind. The glass panes are all double strength, tension sealed to be permanently weatherproof, without messy putty or nails.

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man a train. Actually, manning times are mandated by an agency of the government—at the time the incident took place a train crew was limited to 16 hours on duty in any 24-hour period. Violation called for heavy penalties on the employee as well as the employer.

John F. Sytsma
First Vice President,
Brotherhood of Locomotive Engineers
Cleveland, Ohio

Dear Sir: Unfortunately, the view from Britain with its shorter routes, combined with a certain East Coast provincialism, often tends to exclude the 2,000-mile-plus Western routes from consideration. This is unfortunate as the Western trains generally offer the highest quality of service –I have observed this from frequent trips on Santa Fe's magnificent *Super Chief,* which has been rechristened *Southwest Limited* by Amtrak.

The economies of trains, in land use, fuel and pollution do not diminish with the distance traveled. This allows travelers who know a good thing when they see it to see "America the Beautiful" in comfort at eye level from a dome and leave the drivers, busers and fliers to their fantasies that they are "traveling."

Thomas Lee Boles
Coronado, California

Anatomy theater

Dear Sir: In addition to appreciating the informative historical treatment of Leiden University's 16th-century anatomy theater, I was also intrigued by the surgical and dissection instruments displayed. Since I teach a course in human anatomy and dissection, I have attempted to identify the instruments. I came up with various sizes and shapes of straight razors which were the scalpels of that day, a caliper for measuring various distances, a bone saw, large aspirating syringes for blood or body fluids, scissors and what seem to be chisels or periosteal elevators. The instruments we use today are little changed except that they are more refined, more delicate and more numerous.

David Garrison
Central State University
Edmond, Oklahoma

Penland School

Dear Sir: Penland School, as described in

You can't experience today's high fidelity with yesterday's record changer.

Most high fidelity manufacturers watch each other to find out what's new. At Pioneer, we keep our eye on the audio enthusiast to find out what he wants. That's what keeps us ahead of all the others who are watching all of the others.

If you look at the sale of record playing devices — and we have — you'll see that sales of manual turntables are increasing four times faster than the sale of record changers. The reasons are clear: Record changers were designed a generation ago — for another generation. Designed for hours of uninterrupted background music at cocktail parties.

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It's part of Pioneer's responsibility to understand and anticipate your changing needs. As a result, we now offer you the most complete line of professional manual turntables available. Each one of them delivers the highest level of performance, the most sophisticated features and the greatest value in its price category. And all of them have the precision engineering and quality that are part of the Pioneer legend.

When you buy your next record player, shop smart. Consider what you want — and what you need. If you need performance, precision and quality — and want the involvement that only a professional turntable can provide — you'll get a Pioneer.

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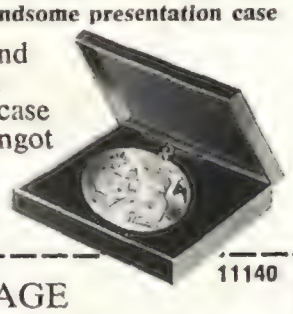

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Official Mint Order Form — 11140

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John Coyne's article, is indeed one of the bright spots in the craft world.

Mr. Coyne's comment that organizing "the total industry" is impossible is true, but there are some striking examples of successful cooperation. Both the Southern Highland Handicraft Guild and the Kentucky Guild are working examples; our members are juried only for excellence, and all are bridged by a common interest.

Garry Barker
Executive Director,
Kentucky Guild of Artists and Craftsmen
Berea, Kentucky

Phenomena, comment and notes

Dear Sir: In reference to James K. Page's item about "tool" use by man, chimps and baboons, I am very much in sympathy with his expression "tool-like." The distinction I make is that for a naturally occurring object to become a tool in the use of some creature, the object must be subjected to some modification from its naturally occurring state by the creature seeking to use it. Less than that, the use is tool-like. In a 1972 letter to Jane Goodall on the subject, I wrote:"A further test of tool using would be if these creatures were found to be modifying a naturally occurring object or material and then utilizing it in this tool-using sense with the modification enhancing its value in its utilization."

Without further description, we must assume that the baboons you reported on were making tool-like use of the stones, rather than using the stones as tools. This may seem to be a rather picky comment, but I think it to have great significance in those evolutionary considerations in which the general consideration of tools is most important.

William F. Fry jr., M.D.
Menlo Park, California

Dear Sir: Other cultural influences than the direction in which we read may determine our ability to distinguish left and right. Many of the Africans I know, including those who read one or several languages (all left to right), seem to have trouble labeling lateral directions, most likely for lack of practice. Just think how it's ground into us:

"No left turn."

"Right lane must turn right."

"Those in favor, raise your right hands."

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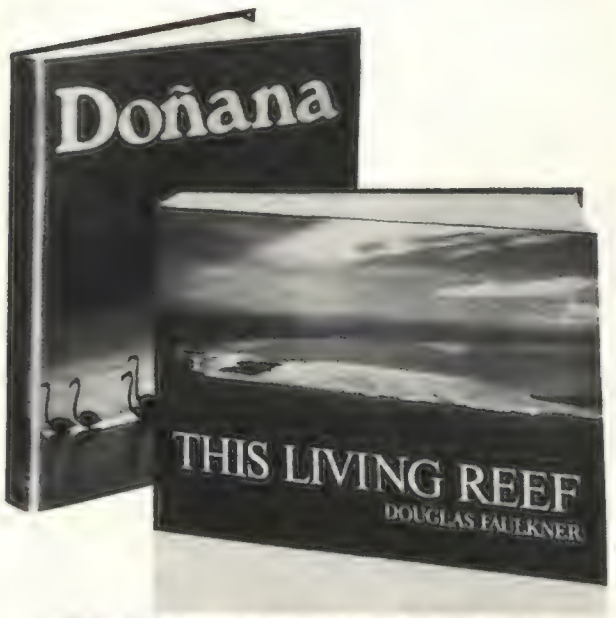

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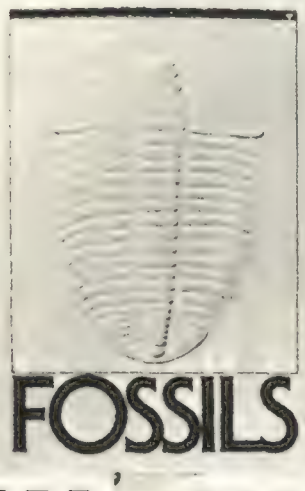

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"He's so dumb he doesn't know his left from his right."

And so on. Other societies may just not have gotten around to worrying about the left-right distinction with our fervor. Had Martin Albert altered his approach to his Muslim students, he probably would have found that 100 percent knew instantly which hand was allowed in the community food bowl.

Larry Ritter
Smithsonian-Peace Corps Environmental Program
Washington, D.C.

Update on bluebirds

Dear Sir: Since I read Brooks Atkinson's article on bluebirds (SMITHSONIAN, April 1974), I have paid much closer attention to our avian population, which appears to be thriving.

In September on a still day, I counted 70 bluebirds sitting in a row on our fence. Most of them are still here, and it must be because of the natural cover in the surrounding woods; we have only four boxes up now. We use no pesticides on the crops or lawn, and even though the moles are rampant, we suffer them as they are apparently competing for the same grubs that the bluebirds enjoy.

Robert L. Rader, M.D.
Anna, Illinois

Around the Mall and beyond

Because Secretary Ripley's Report (p. 119) takes an extended look "Around the Mall and beyond," Edwards Park's column does not appear this month. It will be back regularly in February, with what's new at the Smithsonian Institution.

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Profits Are For People...

As essential as profits are to the survival of our way of life, I know of few subjects so universally misunderstood. And a recent nationwide survey indicated that misconceptions about profits are increasing. Obviously, business is not getting the message through. The time is long overdue for some old-fashioned plain talk.

By putting profits to work, companies build new factories, modernize existing facilities, enable Americans to compete with manufacturers abroad and—most critical—create jobs for our people and opportunities for future generations. The company that doesn't make a consistent profit year in and year out withers and disappears, and so do the jobs of its employees.

Most experts agree that our economy will need at least $4 trillion in new capital during the next 10 years. Unless we plan to convert to socialism—and we certainly don't want to do that—a good part of it will have to come from corporate profits. Yet, contrary to what most Americans think, corporate profits have been shrinking. Today, the rate of profit by U.S. corporations is about 5% on sales, less than it was a decade ago. If profitability continues to shrink, we can look forward to an era of diminished economic growth and fewer jobs.

And when there is less profit to tax, our federal, state and local governments cannot obtain the revenues needed to carry out public programs, and the goals we have set for our society will be seriously threatened.

Our company—Allied Chemical—is a good example of profits at work. From 1970 to 1974, we earned net profits of $436 million and plowed back $258 million into business expansion and job-creating activities. That's about 62¢ of every dollar we earn. But this creative reinvestment of profits is only part of the story. Businesses that are profitable provide much of the support for public spending. During this same period, our company paid more than $382 million in taxes. Our employees paid taxes from their wages, and our stockholders paid taxes on their dividends. So, profits are continually recycled for everyone's benefit.

During the next few months we will be talking publicly about corporate profits because we are convinced that an understanding of this subject by our people is vital to protect America's quality of life. We invite you to read these messages and to let us know how you feel about our viewpoint.

John T. Connor
Chairman

Allied Chemical

AMERICA'S BICENTENNIAL COVERS 1776★1976

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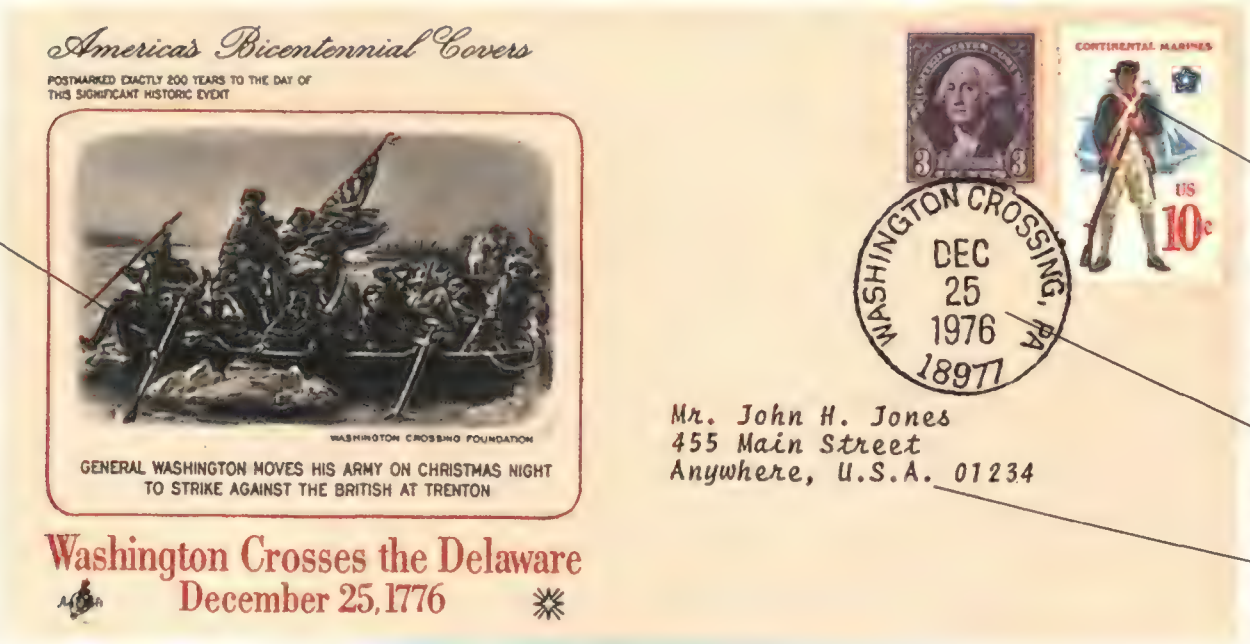
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Historic U.S. Stamps — Selected for their appropriateness to the event commemorated. The stamps used on this cover are the 1932 George Washington stamp and the recent Continental Marines issue.

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Personally addressed to you or whomever you designate.

Other covers in this series will commemorate such historic 1776 events as the Signing of the Declaration of Independence, the Battle of Long Island, and the Heroism of Nathan Hale.

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John Paul Jones Receives First Command	May 10, 1776	Providence, Rhode Island
Battle of Charleston (Sullivan's Island)	June 28, 1776	Charleston, South Carolina
Declaration of Independence Signed	July 4, 1776	Philadelphia, Pennsylvania
Battle of Long Island	Aug. 27, 1776	Brooklyn, New York
The Heroism of Nathan Hale	Sept. 22, 1776	New York, New York
Washington Establishes the U.S. Cavalry	Oct. 30, 1776	Long Island City, New York
Thomas Paine Publishes "Crisis Papers"	Dec. 19, 1776	Philadelphia, Pennsylvania
Washington Crosses the Delaware	Dec. 25, 1776	Washington Crossing, Pennsylvania

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This portrait of James Smithson was done by E. Hattie Burdette after an 1816 miniature.

Cortege passes through Washington Navy Yard on its way to the Smithsonian.

By Melville Bell Grosvenor

How James Smithson came to rest in the institution he never knew

Alexander Graham Bell's grandson tells how the inventor saved Smithson from his threatened grave in Italy and moved him to America

The day had dawned gray and cold—January 25, 1904—and now snow fell softly on the nation's capital as a unique procession got under way. At the Washington Navy Yard, a casket was lowered from the deck of the U.S.S. *Dolphin* to a caisson draped with American and British flags. The Marine Band played "Nearer My God to Thee," and a troop of U.S. Cavalry joined the cortege as it made its way slowly down Pennsylvania Avenue to 12th Street. There the procession turned toward the turreted red sandstone castle of the Smithsonian Institution.

Thus did the remains of a remarkable Englishman—James Smithson—come "home," 75 years after his death, to the institution his fortune founded in a land he never saw.

My father, Gilbert H. Grosvenor, first editor of *National Geographic*, and my grandfather, Alexander Graham Bell, a Smithsonian Regent, both played a part in enshrining Smithson's remains in Washington. I often heard them talk about it, and it is a tale that bears retelling. Let us begin with Smithson himself:

He was born, illegitimately, in 1765. His mother, the widow of James Macie, was a direct descendant of King Henry VII. His father, Hugh Smithson, was related to another noble English family, the Percys, and was created first Duke of Northumberland. In those easier times, illegitimacy, especially among noble families, was a fact of life that caused little comment.

Nevertheless, illegitimacy did have serious consequences. Who you were and what you inherited depended almost totally on being legitimate—especially in the case of aristocrats like Smithson's parents. In those days, most estates were entailed, which meant

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The inventor of the telephone here strolls with Mrs. Bell, who took photographs of exhumation.

A youthful Melville Grosvenor talks with his father, Gilbert, at the *Geographic* in 1944.

Urn in San Benigno cemetery, Genoa, marked grave of James Smithson, who was buried there in 1829.

that the eldest son inherited all. Younger sons got shares that depended on the generosity of their father or eldest brother. Daughters got nothing except a dowry that became the property of their husbands when they married. Bastards got only leftovers. But no need to ramble on about the customs of the early 19th century, except as they affected James Smithson.

He would have been very much at home in the institution that bears his name. Early in life he used his mother's name, Macie, and it was as James Macie that he entered Oxford. He earned his M.A. in 1786 when he was 21. A year later he became a fellow of the Royal Society, one of the youngest persons, if not the youngest, ever to be so honored. Macie, or Smithson, was renowned as an experimental chemist—in those days a discipline not even taught at most universities, which still defined education as a heavy dose of the classics. He was one of the trailblazers of a new school of scientific inquiry. His circle of friends included notables such as the physicist Henry Cavendish, who determined the composition of air and water; Sir Humphrey Davy, who discovered several chemical elements; Dominique Arago, pioneer student of magnetism; William Wollaston, English physicist, physician and chemist. Smithson (he changed his name for good around 1795, possibly because his mother died about then) specialized in minerals and microchemistry. He identified a new mineral now known as Smithsonite.

Sadly, our knowledge of Smithson is limited because his papers, personal belongings and large mineral collection were destroyed by fire. We don't know how close he was to his powerful father, or to his half sisters

Mrs. Bell photographed her husband peering into the newly opened grave of Smithson in 1903.

William H. Bishop, U.S. consul in Genoa, lifts Smithson's skull from the opened tomb.

and brothers, one of whom, Earl Percy, was a lieutenant general in the British army in this country during the Revolution. Both the Duke and Percy, while Tories in British politics, sympathized with the American cause. Possibly their feelings influenced James.

Barred because of his birth from recognition in Great Britain, Smithson spent most of his life on the Continent, in France and Italy. He strongly opposed the rise of Napoleon and, despite the efforts of such powerful people as the King of Denmark, to whom his friend Sir Joseph Banks, the botanist, appealed, Smithson was imprisoned for several years. He died in Genoa, Italy, in 1829 and was buried in the British cemetery there. His inherited fortune was left in trust to his bankers, with instructions to pay its income to his nephew, Henry James Hungerford. If Hungerford had children, the Smithson estate would go to them; if he had no children when he died, then the entire estate was to go to the "United States of America, to found at Washington, under the name to [sic] the Smithsonian Institution, an establishment for the increase & diffusion of knowledge among men." Hungerford saw to it that his uncle's grave had a handsome monument built over it and obligingly died with no children six years later. So Smithson's money came to this country. The custom of the time was to carry out such dealings in gold. Smithson's estate filled 105 bags with 1,000 gold sovereigns each—$508,418.46—quite a fortune in those days.

We know the Smithsonian as a place where millions of people go to look at natural history displays, great paintings and everything from Charles Lindbergh's *Spirit of St. Louis* to General Ulysses S. Grant's coat to a Southern Railway steam locomotive in full green regalia. In the days when my grandfather Bell was a Regent of the Smithsonian, the emphasis was much more on scientific research and the publication of sobersided monographs. The Smithsonian has by no means lost this "serious" mission while moving to meet the demands of a later time. It stands as living proof, I think, that one and the same institution can preserve and enhance its scientific credentials while becoming a unique visitor attraction.

I have often felt that one of the great losses in our superefficient age is the feel for an occasion, the sense of the human dimensions of an event, that our ancestors enjoyed. So it was with the actual bringing of the bones of James Smithson from the tiny cemetery of San Benigno in Genoa, where they were buried, to their present resting place in Washington, D.C.

The Regents of the Smithsonian had not ignored the resting place of its founder. Handsome plaques in the

How Smithson came home to rest

Smithsonian Secretary Samuel P. Langley, center, and Dr. Bell, left, await vessel carrying remains.

Anglican Church in Genoa and at the grave testified to the gratitude of the United States to its benefactor. But soon after the turn of the century, disquieting news reached Washington from the French consul in Genoa. The city was building a huge jetty or mole to protect its harbor. Stone for it was being quarried from the hill on which the cemetery stood; it was only a matter of time before the ground under which Smithson was buried would disappear. There were plans to move the bodies, of course.

The Regents reacted with only mild interest—all except my grandfather. He became what today we'd call a militant. His cause was the bringing of Smithson's bones to this country, where they belonged. It turned out that he was a minority of one among the Regents, and, when the cause appeared to be lost, he joined the rest to vote that essentially nothing be done.

Not so my father, Gilbert Grosvenor, Dr. Bell's son-in-law. Feeling his oats as a blossoming young editor of what was to become the prestigious *National Geographic,* he took the case for bringing Smithson to this country to the public. He wrote a carefully reasoned but passionate article in the New York *Herald.*

The Regents then reversed themselves, and Grandfather Bell was appointed a committee of one to see to it that Smithson's bones were brought to Washington. Bell was instructed to bring him back "quietly" and "privately."

"Nonsense," my father said, in effect, and went straight to President Theodore Roosevelt. Grandfather later noted in a letter that ". . . I am proud of him, for I am sure that the people of the United States recognize that it was the proper thing to do to accord a national reception, to the remains of the founder of the Smithsonian Institution."

My grandfather and grandmother arrived in Genoa about Christmastime in 1903. The American consul in Genoa, William Henry Bishop, was the resident Smithson expert. Together, he and Grandfather cut through yard after yard of official red tape and finally, before the new year, had the grave opened. It was in the nick of time. Blasting and digging had torn away at the cemetery hillside.

When at last the slab of stone over the grave vault was lifted, Smithson's skull stared up at the small throng clustered around his grave. The coffin had crumbled to a reddish dust, but the bones were dry and remarkably well preserved. My grandmother brought along a camera to record the occasion, and two of her pictures appear with this article. Smithson's bones were placed carefully in a metal casket which was then soldered shut and placed in a chapel at the cemetery. A couple of days later, the metal casket, covered with an American flag and bearing a wreath that Grandmother made from the leaves of a tree at the grave, was nailed up in a heavy wooden box and loaded on board the German steamship *Princess Irene* for the long voyage to the United States.

In the meantime, my father had been rousing official Washington as best he could for Smithson's arrival. When *Princess Irene* arrived off Sandy Hook and prepared to dock in New York, a U.S. Navy dispatch vessel, U.S.S. *Dolphin,* fired salutes and winched Smithson's casket aboard. Grandmother came to Washington by train, but Grandfather, faithful to his escort duty, remained with the casket and sailed with it to Wash-

Caisson bearing the flag-draped coffin clatters into the grounds of the Smithsonian.

Smithson lies in state in the old Regents' Room awaiting Congressional permission for burial.

ington. *Dolphin* arrived there a couple of days before the welcoming ceremonies were scheduled. Once home, he plunged into the work that had accumulated while he was in Italy, staying up, as was his custom, most of the night and sleeping late in the morning. He had a very valuable and devoted servant, Charles Thompson, who told me years later what happened on the morning of January 25, 1904.

"Hoi, hoi," Charles called. "Breakfast and newspapers here, Mr. Bell. It's now nine o'clock and I can't give you another minute."

"Why am I to get up if I don't want to?" Grandfather grumbled.

"Because you are to be at the Navy Yard at 10 A.M. sharp to escort the remains of James Smithson to their last resting place."

"Nonsense. What are you talking about, Charles? He's been dead for 50 years."

"Can't help it, sir. He's in Washington now, and you brought him here."

Grandfather was silent. Then: "Why did he come back to bother me?"

At that point, Grandmother came in and Charles winds up his recollection of the morning: "Mr. Bell was at the Navy Yard on time, dressed in formal clothes and top hat, for Mrs. Bell could get him up even when I failed."

The Navy Department ordered "as large a force of Marines as may be available" to parade, along with the Marine Band, as Smithson's casket was lifted from *Dolphin*'s deck. The casket was carried slowly to the gate of the Navy Yard, where a troop of the 15th Cavalry waited. The British Ambassador, Sir Mortimer Durand, was in one of the carriages in the funeral procession, as were a representative of President Roosevelt, my grandfather, and most of the Regents of the Smithsonian. Congress had not gotten around to approving a final burial place for Smithson, so his casket was carried upstairs to a quiet room. Eventually, he was placed in a handsome tomb, surrounded by much of the monument at his grave in Genoa, which had been brought to this country. Then, as now, Smithson's resting place is in a room to the left of the main entrance of the castle.

In the midst of the restoration of the crypt room in 1973, Smithson's coffin was removed from the tomb and opened. Anthropologists studied the bones carefully; what they discovered is described separately on the next page. But no anthropologist, measure and study as carefully as he might, could ever measure the largest part of Smithson—his heart.

To measure that, you have to go to Washington and see the vast buildings he helped make possible that march up and down the Mall. You have to go inside them and come to know the hundreds of dedicated, brilliant people who each day push the horizons of James Smithson's vision just a little further out than it was yesterday.

Clues to Smithson's characteristics

Beginning on October 3, 1973, Dr. J. Lawrence Angel, the Smithsonian's Curator of Physical Anthropology, together with Drs. T. Dale Stewart, Lucile E. St. Hoyme and others from the Smithsonian's Department of Anthropology, examined James Smithson's bones. Afterward the bones were sealed in plastic bags and copper boxes and reinterred. The people carrying out the examination avoided previous knowledge of Smithson so that their deductions would be unprejudiced and could be compared with reports made about Smithson's bones in 1903 and with what was actually known about him. This note summarizes the findings of that group.

When the bones were brought from Italy to this country, they were jumbled in the casket and some were thus broken long after death—a couple of ribs and part of the spine. However, all the bones were dry and well-preserved. The skeleton appeared to be that of a white male who died between 50 and 65 years of age (actually he was 64). He was a couple of inches shorter than the average modern American and a little shorter than the average upper-class Englishman of the late 18th century. He was rather small and slight in build but athletic, with a long trunk, big chest and powerful arms and hands. His teeth were worn on the left side from gripping a pipe. He had bad teeth generally—17 had been lost while he was alive and five had abscesses when he died. Further examination of the teeth show growth-arrest lines in positions that suggest illnesses in early childhood, perhaps at the time of weaning.

Bone studies indicate there may have been a minor shoulder injury in early childhood. X rays of the ends of longer bones show no growth arrest, so health in later childhood was probably sound. Indications generally point to poor childhood diet and perhaps early anemia. Other bone analysis suggests an active and vigorous man, sometimes climbing, sometimes using his hands for hard work, sometimes bending over a desk. And certain peculiarities of the right little finger suggest that he may have played the harpsichord, piano or a stringed instrument such as a violin.

Four-foot mace holds institution's symbol and Smithson family lion. Below are six shields: Oxford University and five cities that affected him. Gold ribbon around shaft names Institution Secretaries.

Present tomb of Smithson in the castle is marked by the tablet placed at Genoa by Secretary Langley.

JAMES SMITHSON

At the end of Temple Street, 32-story People's Park (opposite) symbolizes end of the old Chinatown as well.

Chinatown, built on reclaimed land, is in the middle background in this 1856 painting.

Text by Shelley Mydans

Photographs by Carl Mydans

Progress dooms charm and bustle of *the* Chinatown in Singapore

The fragrant old shophouses are coming down and the sterile high-rises are going up; Raffles' crossroads will never be the same

Of all the Chinatowns in the world, where Chinese have clustered after fleeing the poverty and overcrowding of their homeland, Singapore's *Tua Pho* (Big Town) is the most fascinating to me. Its narrow streets with their arcaded walks were laid out by order of Sir Thomas Stamford Raffles of the East India Company soon after his boat came nosing into the mangrove swamps of Singapore island in 1819. For more than 150 years it grew and flourished, famous for the nervous commercial energy of its traders and financial wizards, for the wiry strength of its coolies, who mixed their sweat with the earth of the low hills to fill and extend the land, and for the murderous infighting among its clans and secret societies.

By the early 1970s, more than 100,000 people lived in this "most crowded square mile in the world." Many still are crammed into the sagging upper floors and pitch-dark passageways of the old shophouses. Family life, as well as the work of craftsmen and the goods of entrepreneurs, spills out into five-foot covered walks. Open markets fill many of the streets, and poles of drying laundry float like banners overhead.

Vibrant, colorful, redolent of China as it used to be, today *Tua Pho*—Chinatown—is giving way to modern times. Although some efforts are being made to preserve selected areas, the pressure of space on this small island and the ever-rising standard of living inevitably put the emphasis on what the young, efficient urban planners of the Republic of Singapore call the development of the social infrastructure: the construction and modernization of public housing, shops, hawkers' centers, markets, streets and public utilities.

Already whole neighborhoods of clogged streets and faded buildings have been demolished and 30-story "people's parks" and high-rise banks, shopping cen-

The writer-photographer team of Shelley and Carl Mydans covered the Burmese National Theater troupe, which made a U.S. tour, for October SMITHSONIAN.

Singapore's doomed Chinatown

Sir Stamford Raffles' statue stands on North Boat Quay, near his probable 1819 landing spot.

ters and apartment complexes are going up in their place. Longtime residents who have been living as many as ten to a cubicle the size of two double beds are being relocated into fresh, white, high-rise, low-cost housing flats across the city—the young ones happy to go, their elders torn by the disruption of an old tradition-conscious community. It means brighter, healthier living for the last poor descendants of those thousands of coolies who were brought from China—400 crammed into a single sailing junk—in what was known as the "pig trade" of the mid-19th century. But Singapore will be less colorful.

I have known *Tua Pho* from the time we first came to this strategic island in 1941, just before the Japanese struck Pearl Harbor and overran Southeast Asia. On our return some 30 years later, we found Singapore so altered from the old prewar colonial city as to be almost unrecognizable. But Chinatown itself had not changed as drastically as it is changing now, and we go there frequently these days to absorb what we can of the old flavor while it lasts.

Early mornings are still green on Trengganu Street, where market women lay out their produce on the pavement under patched umbrellas. Night markets on Smith and Sago Streets are a blaze of hanging bulbs and fluorescent lights gleaming on stalls displaying everything from cheap Hong Kong shirts to expensive Australian grapes, American apples, Jaffa oranges. You can buy bits of jade and imitation jade there, pirated tape cassettes, batik from Indonesia, plastic toys. You can have a variety of Chinese dishes served at a portable food stall while the crowd passes.

Daily work in double-time

All day the streets are like a stage, with the hot sunlight on a backdrop of old shophouses, their peeling paint in shades of green and lavender, soft reds and Chinese blues, and the action taking place in them is endlessly absorbing. For the people of Chinatown live and move at a quickened tempo, with no waste motion. Men work at a stoop to save the time of straightening up, and women are deft at whatever they take on—as though the rhythmic sequence of their movements had been established in infancy. To watch whole families working in coordination is like watching a ballet.

Here and there, in small open-fronted workshops, some of the traditional crafts and services are carried on. In sandalwood-scented ateliers on Club Street men are carving and gilding images for Buddhist and Taoist temples, and in a cluttered shop where once opium pipes were made, the artisan makes instead small Chinese signature chops.

There is an amahs' hairdresser still working on the

corner of Spring Street, plastering down a client's hair close to her head with starch and shaping the bun distinctively, according to her clan. Many fortune-tellers still crouch on their low stools in the walks, ready to give you a propitious date for your wedding, and several calligraphers are there to write good-luck charms in golden characters. Even a few letter-writers still set up their desks against the shophouse walls where for a fee they will read a message from China to an illiterate patron and write his dictated answer.

The vanishing professions

But the old storytellers are gone from the streets. Until this year, when he won the lottery and retired, the single remaining member of this ancient profession used to sit cross-legged behind his soapbox down by the river and by candlelight recount for an audience of aging China-born boatmen the classics of Chinese literature: ten cents for the time it took a stick of incense to burn down.

It is hard to find the once-ubiquitous roadside medicine men who would set any broken bones you might have with a quick sleight of hand. And even the respected philanthropic Thong Tai Medical Institute on Wayang Street, where doctors trained in Chinese medicine donate their services and drugs are dispensed free, is being moved from its fine old palace-style building with curving roofs and open courtyards to a new high-rise hospital.

More than half of Sago Street's notorious "death houses," where the very old and dying were sometimes brought to live their last few days above the open-fronted funeral parlors, are empty now and soon to be demolished. On one side of the street, the loud and colorful funerals and services for the dead still dance and bang their way into the night, while on the other new high-rise flats are already occupied. And derelict shophouses stand empty-eyed along the length of Upper Cross Street.

Lim Kim Guan, a retired newspaperman and for the last ten years the most authoritative guide to Chinatown, says he will not conduct his tours after this year. "The time is up," he says. "I will not try to continue with everything so modern. There are not very many places left to visit. . . ."

Mr. Lim, nicknamed *Ah Low* (Godfather) by Chinatown's shopkeepers and traditional craftsmen through whose premises he leads small groups of shy and fascinated foreigners, is as familiar with the area—as it is and as it used to be—as anyone in Singapore. He was born and brought up there when his father owned a bicycle shop in Upper Pickering Street. The father came to Singapore in the last dwindling flow of the pig trade in 1881: a 17-year-old boy with a few years

Veteran guide Lim Kim Guan with U.S. tourists he is taking on a Singapore River lighter tour.

In Chinatown's Sago Street, a lantern maker painstakingly paints wares for a holiday.

The passing of Sago Street: new flats loom on left side; others will replace houses at right.

of Confucian schooling, leaving a bride behind. He came from Amoy, in the southern coastal province of Fukien, and because of the local dialect was known as a Hokkienese.

Such southern coastal immigrants were known for the ferocity of their character. And when, in the 19th century, these "turbulent" men reached Singapore, coming as they did without women and being "the poorest of the poor," they were recognized as volatile, if energetic and industrious.

To survive, join a tong

The Chinese had their own procedures for keeping a rein on their immigrants, and when young Lim's junk warped into the landing at the Telok Ayer market, he was taken under the tight protection of a Hokkien *hui* or syndicate—what the British, and later the Americans, called a tong. As a raw arrival, he was known as a piglet and in exchange for his labor was given his food, a place to sleep and a little money to send home to China.

His very first act, like that of 60 years of Hokkienese before him, was to go down Telok Ayer Street along the shore to the earliest of Chinatown's joss houses—by then enlarged from the original atap hut to an impressive temple—and give thanks for his safe arrival to the image of *Ma-cho-po,* the Queen of Heaven and Mother of the Heavenly Sages, who watches over those who go to sea. After he worked off his indenture young Lim took a second wife, a *Nonya* or Straits-born Chinese, a descendant of those pioneering merchants who had come to Malaya as early as the 16th century.

Singapore island is a tiny diamond-shaped ornament at the end of the long pendant of the Malay peninsula that hangs southward from the mainland of Asia into the bosom of the Southeast Asian islands. In area (209 square miles) it is about the size of greater New York City and its current population (2.2 million) is slightly less than that of the Borough of Brooklyn. But although many people still address their letters to "Singapore, Malaysia"—or even "Singapore, China," or "Singapore, Japan"—it is an independent nation, a thriving city-state, with the third largest oil refining center and the fourth busiest harbor in the world. The republic—its economy and politics run by local Chinese—was ten years old in 1975.

Devoid of natural resources (even a large proportion of its drinking water must come over the narrow man-made causeway from Malaysia), Singapore has two great assets: its situation at the eastern end of the Straits of Malacca, where the Indian Ocean meets the South China Sea and the East-West trade converges, and its bright and aggressive citizens.

The 52-story Overseas Chinese Banking Corporation tower, going up at right over Singapore River and its acres of junks, will be Southeast Asia's tallest skyscraper.

As long as men remember, Singapore has been a center of entrepôt, or transshipment, trade. It is a merchants' city. For a time it was part of the Sumatran trading empire of Srivijaya, and the name Singapore derives from an old record that tells of an Indian prince of that kingdom who was driven ashore by a storm one day, and saw a "beautiful quick animal" with a bright red body and jet black head and white breast "somewhat larger than a he-goat." Thinking it was a lion, he named the place *Singapura,* Lion City. (There never have been any lions on Singapore, although as late as 1857 the government surgeon reported 300 people killed by tigers that year. Not until the turn of the century was the island tiger-free.)

When Raffles landed at the mouth of the mangrove-studded river and obtained the right to establish a station from the local Malayan Temenggong for an annual payment of 3,000 Spanish dollars, the fortified palace of the former kingdom was in ruins and the harbor was no longer full of trade. Pirates patrolled the nearby waters and holed up in the mangrove swamps. As one early Moslem chronicler reported: "No mortal dared to pass through the Straits of Singapore. Jins and satans even were afraid. For that was the place the pirates made use of to divide their booty, and there also put to death their captives, and themselves also fought and killed each other."

In the cluster of bamboo and atap huts perched on the high ground of the river's northern bank, were 120 Malayans and perhaps 30 Chinese. A colony of *Orang Laut* (sea gypsies—literally, men from across the sea) lived on small boats on the marshy southern bank. And somewhat inland a few intrepid Chinese planters had cleared the jungle from the low hillsides and were holding off the tigers while they raised crops of gambier and pepper. To service these settlers a single Chinese junk made a brief visit just once each year.

The coming of the British changed all that. The swift schooners and armed brigantines of the "Honourable" East India Company made the Straits safer, and Raffles' establishment of a free and protected port in this strategic spot halfway between China and India touched off an amazing growth. In three years the single Chinese junk had been joined by 1,433

Clothing stalls do a brisk nighttime business in Smith Street, are moved out for daytime traffic.

other Asian vessels, as well as 139 European merchant ships that put into Singapore's typhoon-free harbor every year to take advantage of its free-port facilities and the exotic merchandise that was transshipped by way of its wharves. (Last year nearly 40,000 ships used the modern facilities. And the handful of Chinese have become 1.7 million.)

Raffles' hope was to lay out special *kampong* (villages) for the Chinese and Malays on the southern shore of the river, leaving the more solid northern bank for the British merchants and the company buildings. This was the beginning of Chinatown. The residents there, according to Raffles' instructions, would include the "lower classes who earned their livelihood by handicrafts and personal labor" and the "more respectable class engaged in mercantile speculation." (The planters were to continue to live outside the town.) Within their own enclave it was expected that the Chinese would police themselves—but the area selected for their concentration was overlooked by several hills on which it was convenient to station Indian sepoy troops and build police barracks.

The people of Chinatown were allied—and to some extent still are—in a bewildering assortment of provincial organizations, clan associations, federations of crafts and trades, benevolent brotherhoods, clubs and secret societies. Today, as one walks through the old streets, one can still see, here and there, an entrance with fresh paint, new lanterns, clean-swept chair-lined halls behind the guard screens: It is the headquarters of a club, a temple or a clan association.

The secret brotherhoods at one time were a formidable force in Chinatown's society. They first exposed the lawless side of their activities in 1831, when a gang of men burst from the jungle to free a group of Chinese prisoners doing road work. At that time it was estimated that there were more than a thousand secret society members who had their headquarters in the island's unexplored interior. Fifty years later their number had grown with the growing population to some 40,000. In this century they reached their peak of strength in a resurgence during the years of the emergency after World War II, when in 1959 there were an estimated 20,000 members in some 120 active groups, most of them branches of the venerable *Ghi Hin* Society.

The *Ghi Hin* is a direct descendant of the Triad Society, or *Hung* League, of South China. The name, Triad, refers to the trinity of Heaven, Earth and Man. The society springs from ancient roots planted deep in adversity. When the invading Manchus from the north overthrew the rulers of the Ming dynasty in

Produce stalls fill Trengganu Street with local greens, and vegetables grown in Malaysia highlands.

1644, many guerrilla groups were formed to resist them, especially in the south.

Over the centuries the Triad grew, the initiates intermingling the blood from their pricked fingers and swearing fearful oaths of secrecy and mutual aid. ("If a brother break his oath may he within 100 days die by being cut to pieces, or in the five seas with his flesh floating on the surface and his bones sinking to the bottom. . . . May he die under 10,000 knives. . . .") Early English observers encouraged the Triad as a self-policing force in Chinatown, but soon the authorities were made aware—all outward deference to the contrary—that the brotherhood had no intention of observing more than the outer forms of English law. And some elements entered openly into crime.

In the mid-19th century, gangs of 40 and 50 men with blackened faces and an assortment of fearsome knives and spears and wicker shields floated through Chinatown. And if some were caught by the inadequate police force, others sprang to their rescue.

The Society was outlawed. And although in China the Triad had, at last, an opportunity to help overthrow the Manchus by supporting the 1911 revolution of Sun Yat-sen, in Singapore it lost coherence and splintered into several rival groups. A few continued to preserve the formal ceremonies, the unity and discipline—the only form of authority recognized by many of the poorest immigrants—but others drifted far from their heritage. Chinatown was carved into territories where rival gangs, identified by special tattoos, secret passwords and mysterious signals, claimed the rights to the protection rackets and fought it out with light bulbs filled with acid.

Mr. Lim remembers those days before the war, in the Twenties and Thirties, when Chinatown was a dangerous place even for foreigners, and crime of all sorts was endemic. If you were a young man living there, you joined a society. You couldn't get a job unless you did—nor was your safety guaranteed. It was 1930 and Lim was just 15 when he joined the *Ang Beng Hui* (Red Dot Society), then one of the most powerful in Singapore.

Sitting in his modern apartment in this well-run city, Mr. Lim reminisces somberly. He remembers going to the jungle hideout for his initiation, the pricking of his finger and putting a drop of blood into the bowl of rice wine to be joined by the other initiates' (there were 20 in all). He remembers the commandments and drinking the wine with the blood.

There were ten grades within the Society. "Ten through one on an ascending scale," he explains. Lim, like the others, started at the bottom as a Tenth

Brother, and his first assignment was to go with a more experienced brother as a pickpocket. "You have to start at the very bottom," he says almost apologetically. Then, as though suddenly really remembering: "Luckily I never got caught."

Step by step the young Lim worked up in the Society. "From pickpocket I graduated to housebreaker, and from housebreaker one more grade to armed robber. But I never had the chance to graduate to the top grade, Tiger General."

Mr. Lim's children, third-generation Singaporeans with children of their own, do not live in Chinatown. Like others of their time, they are well educated, upwardly mobile, modern in outlook. Some time ago the Minister of Foreign Affairs put a choice to his countrymen: between "being Singaporeans or joining the dismal ranks of Running Men," with no country, as he described them, "with no name, no identity, no security and no rest."

To most young Singaporeans the choice is obvious. They look forward to the future and are proud of the clean, ultramodern city they see growing up around them. They are slightly ashamed of their roots in Chinatown with its crumbling buildings and dark passageways, its overworked and ancestor-ridden men and women living in cubicles, its links with a China they know nothing of. To them it is a symbol of the times when their fathers called themselves *hua chiao,* "sojourning Chinese," as so many still do in the surrounding Southeast Asian nations. They are no longer strangers in a strange land but patriots in their own country, and they are willing to wipe out the past.

For the foreigner, however, and for those who see some value in history, the radical changes being wrought in Chinatown, the diminution of its unique identity, mean the loss not only of quaintness, but also of a culture that is irreplaceable. And foreigners as a source of foreign exchange are of increasing value to the Republic of Singapore.

Tourism as an industry is relatively new here. In 1964, when the Tourist Promotion Board was formed, 91,000 foreign visitors brought a revenue of some $25 million. Before that time outsiders were not sought after by a straitlaced government that feared the corrupting influence of the "yellow culture of the West." However, the desire for foreign exchange was more pressing than ideology, and the tourist board launched an intensive advertising campaign on the theme that the ancient cultures of the East were readily available in Singapore. They called it "Instant Asia."

In response, the growth in tourism (at 25 percent a year) has been as phenomenal as that in other industries of prosperous Singapore: In 1974, when 1.08 million tourists came and the revenue came close to $240 million, this industry was the fifth largest contributor to the national domestic product.

The promise of an instant Asia served the country well. But now that lure is vanishing, and ads for tourism proclaim that Singapore is clean and modern and that the smiling folks speak English, all of which is true. For most Singaporeans, including many in *Tua Pho* itself, this is progress. Look up at the sky above the heart of Chinatown and see the steel and concrete rising 30 stories, 35, even 50. A grandfather with a round, half-naked, spike-haired baby in his arms stops by you, follows your gaze and smiles. "Fifty-over stories," he says. He sounds proud. He and the baby look up again at the twin towers of the Overseas Chinese Banking Corporation building that rise like reprimanding fingers over the old shophouses, and it is clear that he sees the baby's future as better than the past.

When this old man's street is selected for redevelopment, he will move with his family from a cluttered cubicle in a maze of dark passageways to a room in a vast white housing complex of one-room, two-room and three-room flats. Because he is very poor, he and his family of five will again have only one room. But it will have a balcony, windows, sunlight and air. There will be a kitchen space and running water, a toilet, and a belt of green around the block of flats where the little grandson can play.

Perhaps in practical, pragmatic terms—and Singaporeans are the most pragmatic of people—it will be worth the loss of roots and the color and complexities of old attachments. Some are happy to see the change; some mourn. It is not for a foreigner to judge.

A barefoot pedicab driver pensively takes his ease in Amoy Street. Chinatown's pedicabs are dwindling.

It's easy to see why we care about safety

On-the-job accidents may cause physical and mental suffering for workers and their families. Here are some of the steps Bethlehem takes to increase the safety of its employees—who make steel, mine coal, and build ships.

Train. And train we do. At Bethlehem Steel, safety is a *management* responsibility. So we've given our more than 10,000 supervisors the tools and skills needed to help prevent on-the-job accidents. Our supervisory training program is based on a 12-chapter safety manual and a series of 15 one-hour audio-visual training sessions. Every supervisor learns how to identify job hazards . . . how to develop solutions for those hazards . . . how to teach employees the safe way to do the job . . . and how to correct unsafe practices. Does it work?

Since our safety program was formalized in 1916, serious injuries to Bethlehem Steel employees have dropped by 95 per cent.

Teach and observe. Written job procedures are used to teach employees the safe way to do their jobs. Supervisors talk with employees periodically, and observe them at work, to try and make sure they know and follow the safe job procedure. When unsafe practices are detected, the supervisor reinstructs the person doing the job. Is it successful? Today, a Bethlehem Steel employee is safer *on* his job than off.

Protect. We make available proper protective equipment, such as protective clothing, safety glasses, hard hats, safety belts, and respirators. In 1974, Bethlehem Steel invested about $5 million in these and other safety appliances. Was it worth it? You bet it was. We know this equipment saved lives and prevented injuries.

Persist. Bethlehem supervisors and engineers constantly seek ways to improve working conditions, work methods, plant layout, and machine guarding. Training programs, teaching methods, and safety equipment also are constantly being improved. Along with the excellent cooperation of the unions represented at our operations, this persistence pays off—in increased safety for our workers.

BETHLEHEM STEEL

Bethlehem

Isolated family lives in symbiosis with trumpeters

Text and photographs by Warren D. Jorgensen

Second generation of homesteaders in British Columbia finds its destiny linked to that of a swan once hunted almost to extinction

The British Columbian wilderness, thousands of square miles of mountains, lakes and rivers, has not witnessed any heavy incursions of Man as yet. But in the Atnarko Valley, deep in the Coast Mountain Range, 70 miles from the nearest village, the hand of Man has made its imprint. In a clearing carved out of the wilderness stands the main house, barn and eight other buildings of a working farm. No roads lead to it, there are no neighboring farms. It stands alone. The settlement is the home of Jack and Trudy Turner and their daughter Susan.

In 1910 Ralph Edwards, then a young man of 20, came to this valley by way of Massachusetts, North Carolina and California, seeking the solitude of the wilderness. Homesteading on the shore of a lake he named "Lonesome," he set about building a farm and providing for himself by hunting, trapping and guiding hunting parties. In time he married, and he and his wife Edna produced three children: first Stanley and John Earle, and then, on March 30, 1929, Ralph himself delivered their only daughter, Isobelle Gertrude (Trudy), in their log cabin.

They did not have much money, nor did they need all that much. What they lacked was made up for in their spiritual freedom and their pioneering way of life. As Ralph wrote to a friend in 1928: "We do get lonely sometimes, but we are working to build up a pioneer home—to put stones and logs into our air castles, and reality into our visions."

When he arrived in the valley, Ralph found that he had welcome company that he had not counted on during the winter months. Lonesome Lake was the wintering ground for a flock of trumpeter swans, one of the two swan species found in the wild in North America and, at that time, almost extinct. They would come to the valley each November, as they probably had been doing for as long as there has been a lake. They were attracted by the shallow waters at the upper end of the lake which were kept open during the winter months by the flow of the Atnarko, which feeds into the lake. They would feed there and through springholes in the ice along the lakeshore. At the time of his discovery, there were roughly 100 swans feeding along Lonesome Lake, and Ralph kept an eye on them, not allowing them to be shot by visiting hunters, helping to keep the springholes open, and dipping into his own small supply of feed to help them out.

At that time, it was estimated that there were 100 trumpeter swans in the United States and perhaps 500 in Canada, so his discovery of this flock was a find indeed. In the mid-Twenties, Ralph walked into a camp of hunters while making the rounds of his trapline. One of them was John P. Holman, a conservationist. Ralph told Holman about the swans, and he notified the Canadian Wildlife Service. As a result, Edwards was made game warden, charged with looking after and caring for the swans, at a small annual salary. This, added to the small amount of money he was mak-

Every day from mid-November to March, swans come to Lonesome Lake for grain the Turners provide.

ing from trapping, provided the family with their subsistence. It was also the beginning of the mutual survival trust that exists on Lonesome Lake to this day.

It was in this environment of love for nature and appreciation of all living creatures that Trudy and her brothers were raised. The children were educated through government correspondence courses and the Edwards' store of books and periodicals. Each of the boys was sent to schools on the outside for his secondary education, while Trudy stayed in the valley for all of her formative years. When she was 21, she moved three miles upriver and established her own homestead, building a small 8- by 12-foot cabin, with a bunk and a stove, and began to farm.

About 1956, Jack Turner, who had read about the Edwards and their unmarried daughter, came to visit the homestead. A loner born in Vancouver, Turner had been making solitary trips through this wilderness area ever since he was a teen-ager, had worked as a forestry engineer and surveyor, and at one time had worked a one-man fishing boat off the British Columbian coast. Mentally, he was well equipped to deal with solitude. He was welcomed into the valley, and he and Trudy were married in 1957. Jack's wedding gift to Trudy was a chain saw. They would need it. The second generation of homesteaders in the Atnarko Valley had begun. Susan, their only child, was born in January 1959 and has spent her entire lifetime in the valley. There will be no third generation of homesteaders: Both the Turner and Edwards farms now fall within the boundaries of Tweedsmuir Provincial Park.

Isolated from the outside world, almost totally self-supporting and dependent on one another for their day-to-day existence, the Turners' way of life is something out of the last century. They have no central heating, no hot or running water. Their only concessions to modernity are the chain saw, a gasoline-powered washing machine, an outboard motor for their boat, a portable radio and a battery-operated record player. Their cash outlay for food is just over $100 a year. What they can't grow, catch or make for themselves, they largely do without. As Jack told me, "We could go through the entire Sears, Roebuck catalog and not find one thing that we want or need."

None of which is to say the house is uncomfortable. The first time I walked into their cabin, I was surprised. While I had not expected an unfinished, drafty building, I certainly expected something more rustic. The interior walls of the house are paneled, with in-

Returning from a woodcutting detail, Jack Turner passes a can of milk set out in a stream to cool.

A loner most of his life, Turner delights in his independence, 70 miles from nearest village.

sulation between the paneling and the log exterior. The floors are covered with linoleum, and the furniture, shelving and cabinetwork are all handmade with a professional look and fit. They did it themselves, like everything else on the farm. The paneling, shingles and the wood-burning stove were all packed in from the outside, extravagant necessities that involved days of hard work to get them there.

Their everyday life is like that of the wilderness creatures that live all around them, dictated by the seasons and weather. There is on this farm, owing to its isolation, the same delicate balance that is found outside the fenceline in nature's realm. If one animal should fall ill or die, it is lost for essential needs; the other animals must take up the load and the system is weakened. A fire could leave them shelterless and exposed to the elements, or destroy their hay, without which the cattle would probably starve. The utmost care must be exercised and it becomes an habitual part of their lives. Jack brought this home to me when I went to watch Trudy feed the cattle from the hayloft. "Please leave your matches here," he asked me before I left the house, "and any sharp objects you might have in your pockets. We can't risk your losing them and having one of the cows swallow them."

Each spring, farm activity peaks. In their small garden, less than an acre, they plant more than 20 crops. The growing season is short this far north, so they must get the seed into the ground with as little delay as possible, working in concert from early morning until dark for two weeks. The only foodstuffs they import are salt, sugar and spices. They drink the milk from their cows, which are also butchered for beef. They have chickens and an abundance of fish.

When she was a baby, Susan was carried on her mother's back while her parents worked the farm. Now that she is older, she works mostly with the animals.

Warren D. Jorgensen, who lives in New York City, is a free-lance photographer and writer.

While she does help out with some of the heavier chores, such as clearing land, her parents are very careful about her participation. A lot of this is very heavy work, and an injury is more than just that. There is no physician or hospital a phone call away, so that a small injury can turn into a major catastrophe. They do have a crank phone to Trudy's mother's cabin, and Mrs. Edwards has a radio with which she can call for assistance, but the arrival of airborne help is entirely dependent on the weather. On each of my three visits, I had to sit out weather conditions for as long as four days in Bella Coola, the nearest town.

Susan lives a life totally unlike that of the average teen-ager. She has spent almost no time outside the valley, although she did work at a resort in the summer of 1973. Her world is this farm and the wilderness. There are no friends coming over to the house, no neighbors, no brothers or sisters. She does correspond with pen pals, but by and large she is completely innocent of the outside world. She would like to work with animals in some way when she grows older. They are her friends now, and have been since she was born. Like her mother and father, she prefers animals to people. "Whatever I do," she says, "I will never go to work in the city. That I am adamant about."

Susan is educated in the same manner that her mother was, with a full curriculum of English, French, math, science, social studies and art. The schooling and testing are administered by her mother. Her favorite reading is animal stories and the family's shelves are full of animal anthologies and texts. Her mother and father are her teachers, confidants, friends. As a matter of fact, they all serve these functions for each other. There is no one else to turn to. Jack understated it when he said, "You really have to get along pretty well together to live as we do, but it suits us."

Together, the three of them have expanded the farm from the small cabin that Trudy started off with to the comfortable home they have today. They have cleared more than 20 of their 160 acres for grazing, living or growing, and clearing continues on a year-round basis, whenever they get the chance and the weather permits burning. They have done all of this with three horses, a chain saw and lots of sweat. Timber taken from this land went right into buildings, fences, bridges and furniture. Wood not used for construction was used for heat. Very little is wasted here.

Even this degree of independence can't be achieved without money, contrary to the dreams of an increasing number of young people today who want to "return to the earth," to be free of the everyday demands of making a living. They find out too late that money is needed and wind up spending six months a year working on the railroad or in a lumber camp.

The Turners are perhaps all the more fortunate for their location. In 1936 a flash flood inundated the open waters that the trumpeter swan flock had been coming to each winter, raising the level of the lake several inches and thus allowing their feeding waters to freeze

Mrs. Turner drives horses from the barn. They are used for plowing, clearing land and hauling supplies.

The family has made all its own furniture. Here Trudy Turner converts a tree root into a stool.

over. When the swans returned that winter, they almost starved, and their numbers fell to about 30.

The Canadian Wildlife Service began a feeding program, paying Ralph to pack grain from a trailhead 20 miles away and distribute it to the birds. From 1947 to 1958 the grain was brought in by air, but when Jack and Trudy got married, they not only took over the wardenship as a dowry, but they underbid the air service and won the contract to pack in the grain again.

Packing grain was their biggest single project of the year, taking up to 60 days during September and October. It involved the transport of eight or nine tons of grain—in addition to a ton of their own supplies—across 20 miles of mountainous terrain, forest and lake. Using only horses and rafts, they had to accomplish the entire operation before freeze-up, when the salmon are running and the valley swarms with bears.

The swan flock, since the near-disaster in 1936, has grown to a population of roughly 500. At the moment Man is their best friend. It was not always the case.

Trumpeter swans have been native to this continent since prehistoric times; their skeletons and remains

Trudy, her hair cropped short for neatness, supervises the education of her teen-aged daughter.

have been unearthed in archaeological digs in various parts of the United States and Canada. Ancient Indian tribes used the swans for food and their bones and feathers for implements and decorations. Although their numbers then will never be known, they ranged as far south as the Gulf Coast and their presence was noted on the Eastern Seaboard from Connecticut to the Carolinas in the 1700s.

Owing largely to a predilection for flying low and close to the shoreline, the swans were an easy target for hunters. The white man quickly turned them into an item of commerce. The swans were mercilessly hunted for their feathers, which reputedly made the finest pen quills. Their breast skins enjoyed a reputation for strength and were used for clothing. From 1820 to 1860 the Hudson's Bay Company marketed 108,000 skins.

By the 1920s the trumpeters' clarion call, which cannot be mistaken for any other once it is heard, was almost silenced. In 1935 the first trumpeter sanctuary was established in Red Rock Lakes, Montana. By actual count, there were 73 swans in residence. The swans responded so well to protection that by 1968 the species was no longer considered to be endangered. Today there are about 5,000 of them on the continent. The Red Rock Lakes sanctuary, 42,000 acres of wilderness, has contributed to this. British Columbia, with its larger wilderness areas, has always had a greater number of the swans, and today more than half the North American population winters there.

Monogamous, the swans mate for life when they are about four or five years old. Breeding in the shallow lakeshore marshes, wintering in open waters, they are bottom feeders, tipping up rather than diving for their food. They begin pairing off in February, spending most of their courting time in snow-covered meadows. Courtship reaches its peak in April. Returning to the breeding grounds, they will nest and breed around mid-May, frequently on muskrat houses, whether occupied or not, or on any other elevation above the marsh. During incubation of the eggs, about 33 to 37 days, they exhibit very little tolerance for interference.

The newborn cygnets grow rapidly, increasing in size 30 times by the age of ten weeks. Flight training begins in September. The grayish-white cygnets, which do not take on their all-white coloring until they are almost two years old, are usually flying by October, in time for the migration to the wintering water. Family units usually stay together until spring of the following year, when they begin a new cycle.

The swans at Lonesome Lake have probably been seen by fewer than 20 people. From November through March they come to feed at the lake from as far as 30 miles up the valley. They begin circling the lake early in the morning, gathering in number as the morning wears on. They glide in, wings spread, landing gear down, tail down, hitting the ice with a hop, skip and jump as they fold in their wings. The air becomes a whirl of landing and departing swans.

They are skittish and usually unapproachable until well into December, when they once again become familiar with the humans coming into their midst. On the first day that I went down to the lake to watch them gather, I was alone, leaving the house an hour and a half before the Turners. I learned very quickly that to approach them I had to move very slowly. It

With the British Columbian mountains as a backdrop, trumpeter swan takes to the air on graceful wings.

took four days before I was able to move into the flock without causing a disturbance. When I did move quickly, they flew away with their spread-wing running takeoff. Then I would stand still for about 15 minutes, until things settled down and they would return.

When she was a young girl, Trudy would hand-feed those that would come to her, as her brothers had done before. In 1953 she was asked to catch five swans for presentation to Queen Elizabeth, which she did, baiting them into a trap with the same feed that was given to them each day. It was four years before she was able to hand-feed them again.

Today, when she feels in a playful mood, Trudy will surround herself with grain, putting it in her hair and on her shoulders, and just stand there as they beat the air around her with their wings, eating out of her hands, from her hair and clothing. But they have not become domesticated or tame. About 50 birds die each year, simply because they are wild and will not eat. The swans fly out each spring, possibly to Alaska, only to return in the fall with a fresh group of cygnets.

The flock's survival is dependent on the winter grain they receive. At Lonesome Lake, Man and bird depend on each other. The Turners' ability to lead the life they choose is dependent on the economic foundation provided by the small warden's salary and the fees for packing in the grain. As long as the swans continue to winter there, the Turners' future is secure. Should the swans leave and not return, the Turners may be forced to follow.

The Weyhe Gallery, New York

Guild Hall, East Hampton, New York

Those in the know could find themselves here. *Ardent Bowlers* is a group portrait of many friends.

By Frank Getlein

A serious, yet funny, artist is reexamined

Master of a pure, ironic and cutting line, Peggy Bacon set down for all time antics in a golden age of artistic activity

In presenting its current large exhibition of Peggy Bacon, the Smithsonian's National Collection of Fine Arts (NCFA) is doing precisely what ought to be one of the primary functions of museums specializing in American art—namely, reviving an artist once widely known and appreciated who has since fallen into the shadows of something close to oblivion.

Peggy Bacon is now 80 years old, a vigorous and productive 80, although subject to the expected occasional infirmities. She was thus just coming to artistic maturity at the time of the 1913 Armory Show which changed so dramatically the American perception of art. The exhibition at the NCFA comes just 60 years after the artist's first one-man show.

Bacon came into art the deceptively easy way: by inheritance. Both her parents were practicing painters: her mother, Elizabeth Chase, producing miniatures; her father, Charles Roswell Bacon, landscapes, figures and murals.

She lived a happy but somewhat nomadic childhood. Charles Bacon, following one tradition of landscape painting, moved around a lot to find and exhaust naturally scenic locales. Peggy and her mother went along, living for months, sometimes a few years, in Nassau, New Hampshire, France and London, and in all those places meeting groups of artists of her father's or an older generation. She received a thoroughgoing classical education at Kent Place School in Summit, New Jersey, and in 1913 was accepted at Smith College. The summer before she was to go, however, Peggy decided to study art instead, to the profound disappointment of her parents. That fall her father committed suicide out of depression over his failing career as a painter.

In spite of the severe emotional obstacle presented by the death of her father, Peggy persevered. She put in five years at the Art Students' League in New York City under various teachers, including John Sloan and George Bellows. During those years she was spending

Wife of a literary editor, Louise Hellstrom typified party-going in the flamboyant Twenties.

Critic-at-large for the Washington Star, *Frank Getlein has written many books on American artists.*

Large, luminous eyes concealed
Peggy Bacon's incisive viewpoint.

Lloyd C. Taylor jr.

For decades a prominent figure in the art world,
Juliana Force was director of the Whitney Museum.

summers in Provincetown, painting with friends and older artists, and becoming friendly with Eugene O'Neill, Edna St. Vincent Millay, Alfred Kreymborg, John Reed and Louise Bryant (Mrs. Reed). At Provincetown, in Greenwich Village, later at Woodstock, New York, and on the Maine coast, Peggy Bacon grew up artistically. She quickly took her place as a citizen, even a charter member, of the group of American artists who, working variously out of the tradition of The Eight and that of the European revelations of the Armory Show, created a new, informal, lively art that was to dominate the American art world between the two wars.

While at the League, she more or less invented printmaking in general and drypoint in particular as media for herself. The statement sounds inflated, but in fact the League at the time, like art schools everywhere in America, concentrated heavily on painting and gave printmaking very short shrift indeed, especially the older forms of it. Although etching societies had been very popular in the closing decades of the last century, after the Armory Show the lithograph became the most popular form of print, but even among students it was rarely considered to be as "serious" as painting. Technically, the trouble with the lithograph has always been that it too easily lends itself to the creation of what are essentially reproductions of drawings and paintings. Peggy Bacon found in drypoint's incisive line a medium that did not obliterate itself, but, instead, contributed to the message.

F.M. Hall Collection, University of Nebraska Art Galleries

Bacon's charcoal sketch of Georgia O'Keeffe shows
another aspect from famous photographs by Stieglitz.

Mrs. Helen Hurewitz, Rockville Center, New York

A crayon study of the mordant Dorothy Parker, about to deliver, probably, a deservedly mortal verbal blow.

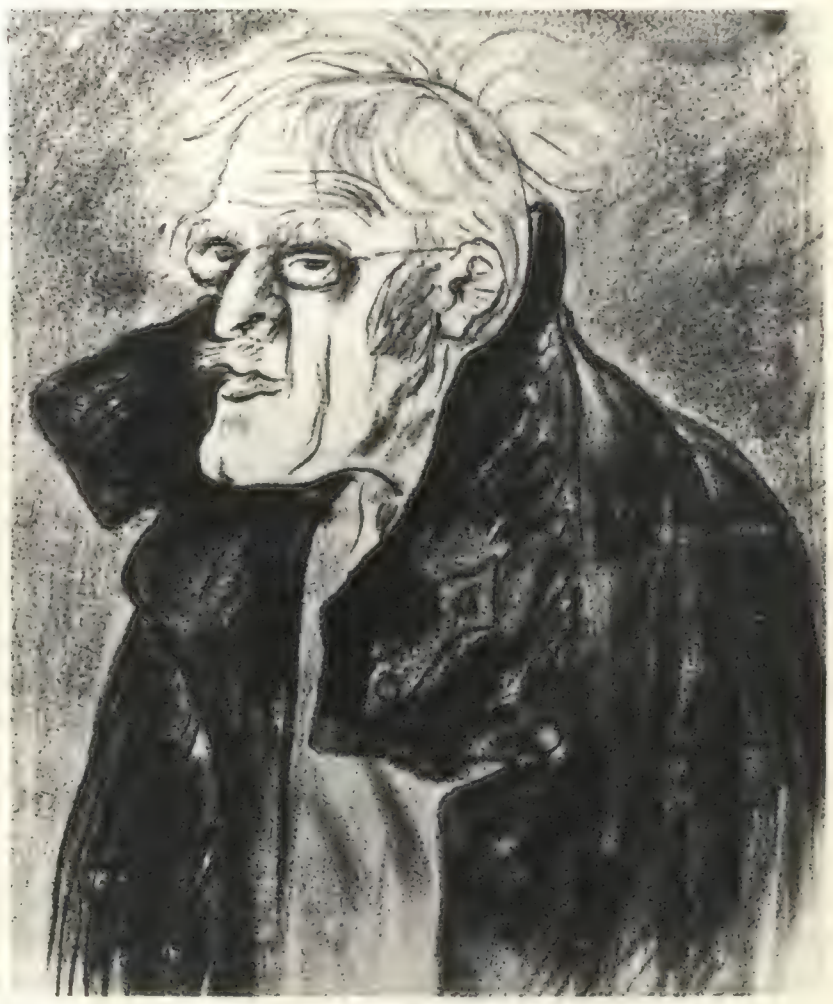
Baker-Pisano Collection, New York

Edith Halpert, whose Downtown Gallery continued to be a valid force in art even after it went uptown.

Syracuse University Art Collection

Pastel portrait of Henry McBride who was, what else?, a noted art critic for *New York Sun* and *The Dial.*

F.M. Hall Collection, University of Nebraska



This is Bacon's Alfred Stieglitz—a great pioneering photographer, a visionary art dealer.

The other thing she got out of the League, of course, was her marriage to Alexander Brook. They met in the League's lunchroom in 1918 and were married two years later.

Brook was far more than a felicitous, seemingly effortless painter of sometimes concealed strength. As assistant to Juliana Force, director of the Whitney Studio Club, which later became the Whitney Museum of American Art, Brook was at the center of all developments in the emerging American art of the first half of the century. Peggy Bacon was at his side and in that milieu found the subjects for her own art.

The milieu itself was the subject often enough: groups of artists at work, at play, at rest. They paint from the model, they sit around drinking and talking, they go boating or bowling. We see also the larger world surrounding the artists: street scenes in the Village or elsewhere around town, social gatherings of the rich and art-collecting, visitors to art exhibitions—all almost invariably contrasted rather unfavorably with the art, even when the art is only dimly seen.

Above all, we see the faces of the time and the place. What a gallery they comprise! Such contrasting journalists as Herbert Bayard Swope, the flamboyant editor, and Heywood Broun, the crack reporter, drinker, cardplayer and founding member of the American Newspaper Guild; Dorothy Parker and Lillian Gish; President Roosevelt and Mayor La Guardia; Jascha Heifetz and Bill "Bojangles" Robinson; Royal Cortissoz and Henry McBride, the critics; and artists, artists, artists: Brook, of course, Marsden Hartley, Childe Hassam, Georgia O'Keeffe, Charles Demuth, Charles Sheeler, Guy Pène du Bois, Yasuo Kuniyoshi; and the two dealers who brought so many of those artists together and were at once so important and so irritating to the artists they prospered, Alfred Stieglitz, whose 291 Gallery began showing these young, fresh artists, and Edith Gregor Halpert, who continued that work in her Downtown Gallery.

Off with their heads!

If Peggy Bacon had done nothing but render more or less accurately the faces of the people she sketched, that body of portraiture would be invaluable for any student of the time and would demand a presiding place in the Archives of American Art.

But of course Bacon did much more than that. In drypoint, crayon, pastel and charcoal she practiced the art of a kind of supercaricaturist. In her work the character of the subject dictates the look, and they both combine with the action of the artist in dividing the canvas. Her large heads in pastel are always lively and delightful dispositions of space and compositions of movement, as well as authoritative demonstrations

National Portrait Gallery

Heywood Broun (above) was described by columnist Westbrook Pegler as looking like "an unmade bed."

of that spiritual truth that is the hallmark of both caricature and the best portraiture.

Consider the *Edith Halpert.* That enterprising dealer, shrewd bargainer and dedicated crusader for 20th-century American art appears as an exotic flower of the night, one that just may have dangerous aspects. All of this is brought to focus in her eyes, mouth and chin, with hints of a science-fiction creature able to engulf the unwary. In short, this is precisely the way many of her artists, and not a few of her customers, thought of Edith.

Or *Georgia O'Keeffe.* Our image of Georgia O'Keeffe is formed by the prolific, highly textural and ultimately adoring photographs taken by her husband, Stieglitz. Bacon shows us quite a different O'Keeffe, one composed of hard planes and angular lines and we realize that this has to be true because it is true both to the artist's work that we know and to her vision in that work.

Stieglitz himself appears in Bacon's vision as a haunted, even furtive figure, a magician, yes, but a magician by no means sure of his reception, perhaps not even of his own repertoire.

Roberta Tarbell, who wrote the excellent catalog for the show, and NCFA print curator Janet Flint have produced a beguiling exhibition and a permanently valuable catalog of an American artist of distinction, humor, keen observation and a mind always worthy of our attention.

Peggy Bacon's titles could be as swift as her line. This drypoint is entitled *Antique Beauty.*

Kraushaar Galleries, New York

This old city has survived bombardments, invasions, earthquakes and real estate developments.

This is Charleston, South Carolina in January 1976. Not very different from the way it looked in January 1776.

No other Colonial city in America has managed to withstand the ravages of time so well and still adjust so gracefully to the 20th century. Charleston today is a living museum, complete with houses, churches and public buildings dating back as far as 1712.

Many of the older buildings still bear the scars of the British occupation. (During the Revolutionary War, Charleston was held by the British for over

1. The William Rhett House 1712c.
2. St. Michael's Church 1752c.
3. The First Scots Church 1814c.
4. Wilkinson-Huger House 1838c.
5. Former Dependency 1770c.
6. St. Philips Church 1835c.
7. Number 3 Ladson Street 1797c.
8. Number 23 Meeting St. 1775c.
9. The John Ash House 1782c.
10. Col. Issac Moote House 1769c.
11. Heyward Washington House (Museum) 1770c.
12. 30 South Battery Street 1840c.
13. 28 South Battery Street 1845c.
14. 26 South Battery Street 1853c.
15. Daniel Elliot Huger House 1760c.
16. The Calhoun Mansion 1876c.
17. Former Residence of Dubose Heyward 1860c.
18. Number 51 East Bay St. 1818c.
19. Shriners Temple 1789c.
20. Nathaniel Russell Middleton House 1858c. 22 S. Battery St.
21. 20 South Battery Street 1843c.
22. Edmonston-Alston House 1828c.
23. The Ross House 1848c.
24. William Ravenal House 1845c.
25. William Roper House 1838c.
26. Number 5 E. Battery St. 1840c.
27. Wm. Washington House 1768c.
28. DeSauseure House 1850c.
29. 2 South Battery Street 1880c.

two years, from May 1780 until December 1782.) But despite the years of change that followed, Charleston has kept its historic past very much alive.

But when you visit Charleston, you don't have to spend all your time in the past. Or even in Charleston. Within an hour's drive, you'll find wide, white, sandy beaches. World-famous gardens. Golf. Tennis. Fishing. A little of everything.

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By Fred Hapgood

When ice crystals fall from the sky art meets science

We have much to learn about ins and outs of snowflake formation, but meanwhile we all can appreciate their delicate beauty

Physicist and artist converge on the delicate conglomeration of ice crystals we know as snowflakes. One wants to know what happens in clouds six miles above the Earth; the other seeks beauty falling from the sky. Both may start with the work of Wilson Alwyn Bentley, a Jericho, Vermont, farmer who was neither artist nor scientist.

Bentley spent almost 50 years photographing snowflakes. When he died in 1931, he left a body of work—techniques, perspectives, thousands of published plates—which has fed artists, nature photographers, illustrators, jewelers, meteorologists and crystallographers ever since. All have taken a theme or two from Bentley's photographs and developed it in their own way, letting the definitions, standards and interests of a half-dozen fields play through his work.

Bentley had no colleagues. The direction his interests took was never defined by a profession's sense of what was relevant, needed or interesting. When professional support and applause came to him eventually, he welcomed it—with it came money and freedom from the worst drudgeries of farming in northern New England—but he had lived too long without it to let anything fundamental be reshaped. What sustained him were evanescent glimpses of a delicate beauty that was utterly pure and more perishable than a sunset; his photographs were, throughout his "career," a simple diary of his sense of wonder.

He was a farmer, born into a farming family in 1865. The single reference to his father, Thomas Edwin, that I have been able to find refers to him as an "up-to-date farmer"; his mother, Fanny Eliza Colton, is described as the daughter of a lumber merchant, though those familiar with the economy of Vermont know that that could mean anything at all. When Bentley was 15 his mother gave him a microscope for Christmas. He took it outside and shook a few snowflakes onto a slide. What he saw when he bent over to squint through the lens changed his life. For the next three winters he tried to draw the crystals, but they were too intricate, too perishable.

Eventually his parents bought him a camera which he adapted to his microscope. When he died, 48 years later, he was still using essentially the same equipment. He would stand outside in a snowstorm wearing, according to a photograph taken in his more prosperous later years (pp. 68-69), a fedora, a high, stiff, white linen collar, a necktie and a chesterfield, and hold a blackboard out under the sky. As flakes fell on the board, he would examine them for unusual features. "The fortunes of the snowflake collector vary as do those of all collectors," he once wrote. "Now comes a prolific winter with a record of as many as 300 new designs; then comes a lean winter, furnishing fifty or less." It was possible to be misled. "Sometimes the layman, noticing a large fluffy snowflake alight on his coat sleeve, may perceive its beauty and exclaim in admiration, but," Bentley cautioned, "in reality it may be less excellent than it appears. The very bit of snow the layman ignores may be far more lovely."

In 1898 he published an article in *Harper's* and from then on his fame—and the demand for his photographs—spread. It is possible to detect signs in his writings of accommodation to this public interest in his work. In his *Harper's* article he let his photographs speak for themselves. The text was brief, and such descriptive phrases as he used were spare and Yankee: rods, slats, bars, filaments. His text, however, later became longer and his style more flowery. Jewelers in particular bought his photographs, and metaphors drawn from jewelry began to crop up in his writing. "There are snowflake jewels for every conceivable occasion," he remarked in a *New York Times Magazine* piece published in 1928. "Some are of the 'tailored' triangular cut, simply decorated with a few well-placed lines; others, more 'dressy,' have centres of dots and

A snowflake, its fragile beauty still intact, settles toward the black ice of a pond in Vermont.

A frequent free-lance author of articles on technical subjects, Hapgood is a science writer in the Harvard University news office.

In a picture from his own book, W. A. Bentley prepares to photograph snowflakes outside his Vermont home.

dashes and lovely pendants; still others. . . ." His book may be a better guide to his values. Three weeks before he died on December 23, 1931, Bentley's magnum opus finally was published—2,500 plates of snowflake crystals selected from a life's work. The book is 226 pages long; the entire text, just two chapters, runs from page 13 only to page 22. All the rest are photographs.

It is hard to know to what extent Bentley stimulated research into snow. Organized science first began to puzzle over snow when Bentley's fame reached its height. Five years after he died, Professor Ukichiro Nakaya at Hokkaido University in Japan ended years of frustrating laboratory work with the creation of the first artificial snow crystal. (Japan has a long history of fascination with snow. The Japanese Bentley was a feudal lord named Toshitsura Oinokami Doi, who, in 1832, published a little book of 100 astonishingly detailed drawings of snow crystals called *Sekka Zusetsu,* or *Illustration of Snow Blossoms*).

Nakaya was a crystallographer, and from the perspective of that profession there is one fact of overwhelming interest about snow crystals: Snow is the only substance that crystallizes in such a variety of shapes. All other crystals have dependable ways of putting themselves together which allows one to classify them at a glance. (Snowflakes are clumps of crystals, sometimes hundreds of them.) One cannot take such liberties with snow, and Nakaya set out to secure this privilege for the crystallographic profession.

This question involves some delicate matters of judgment. Nakaya could hardly be asked to explain every single variation on every crystal; he had to settle on "basic" differences and concentrate on explaining those. Classification schemes run from two general categories (plates and columns) to the presently accepted organization promulgated by the International Commission on Snow and Ice (see pp. 70-71). Virtually every number up to ten has been used at one time or another. Bentley used five. Nakaya settled on seven: needle crystal, columnar crystal, plane crystal (subdivided into hexagonal plate and stellar), combination of column and plane crystal, columnar crystal with extended side planes, rimed crystal and "others." He also isolated and named 37 subvariations within these basic forms.

Nakaya's research, with both artificial and natural snow crystals, laid down the next generation of questions for snow science. He found that snow crystals were extremely sensitive to minute changes in temperature; that if one lowered and raised the temperature in a chamber by just a few degrees, a crystal would grow from one "type" into another and then back

again, each new form enclosing the last inside itself. The crystals were not quite so sensitive to humidity. Ambient water vapor controlled growth rates more than basic form, but he found influence here as well.

The picture of a snow crystal's career that emerged from Nakaya's work is one of a microscopic germ of matter that begins collecting water molecules on its surface. For some time this speck is blown along with the winds inside the cloud, passing through whatever variations of temperature and humidity are to be found in a horizontal plane. Then, as it gains weight, it begins to sink toward the Earth, as far as six miles below. (It is these extremely high crystals which produce halos around the moon.) In its journey it might be rimed, or collide with a microscopic droplet of supercooled water which freezes over it. It might be shattered through collisions with other crystals, or specks of hail, or strong winds. In any case it will certainly be blown up and down, around, back and forth, and pass through a broad spectrum of humidities and temperatures. Each species of environment will leave its impact. When the crystal finally does land, it will bear the signs of all this travel as unmistakably as a piece of luggage thick with tourist stickers.

As yet no one has managed to take the next obvious step and spell out in detail exactly why water molecules with different energies (temperatures) seem to prefer different kinds of formations. When water molecules line up to make a crystal, they lose the energies characteristic of all free-roaming objects. These escaping energies set up a little whirlwind around the surface of the ice crystal. An exact model of what goes on around ice crystals has to take into account not only the complexities of the rain cloud or snow storm, but also this minicyclone that accompanies each crystal.

Impossible for rain to fall?

Meteorologists had had somewhat more, but still not complete success, with the question of "What makes snowflakes at all?" Indeed, they were quite grateful when that question was answered even to the extent described above, but more was to come.

At the time both theory and laboratory results seemed to agree that, under normal conditions, rain was impossible because water droplets could not grow heavy enough to fall.

The droplets, the first step in the condensation of rain out of a cloud, tend to be much too small to fall (10,000 of them would fit in a line across the head of a pin) and fiercely independent. They do not join to make big heavy drops. This was easy to observe in a laboratory and predictable by fluid physics.

The solution turned upon the discovery that every so often one out of a million of these droplets freezes. When that happens, the personality of the droplet, once so withdrawn and modest in its ambitions, undergoes a remarkable change. The crystallization energies mentioned earlier make the air pressure marginally lower over the surface of the crystal. Loose water vapor is attracted by the lower pressure and flows into the neighborhood, where it is deposited upon the surface and edges of the crystal. More energies are radiated; more water vapor is attracted. Soon the droplets in the area begin to shrink as water evaporates from their surfaces and flows to the crystal. The ice crystal has turned into a kind of predator, and soon grows so fat with accumulated booty that it begins to fall toward Earth. When it strikes a layer of warm air, it melts back to water and completes its journey as a raindrop.

Thus the concentrated attentions of meteorologists, cloud physicists, and crystallographers narrowed onto that one-in-a-million droplet. What caused *that* droplet and no other to freeze? Could they tinker with this process a little? Maybe add some more of whatever it was to get rain? Or possibly were we unknowingly already tinkering with it, via industrial pollution?

The working assumption was made that each snow crystal started off with a nucleus, a tiny little speck of some material whose crystalline structure was close enough to that of ice to give the process a "head start." This could be dubbed the "aristocratic theory." It held that the difference between those droplets which froze and those which did not was the quality of their nuclei.

That theory could be demonstrated very prettily in laboratories, and for some time it held the stage. A laboratory in Australia announced in the late 1940s that it had found that these nuclei came from outer space, and produced elaborate correlation charts between rainfall and meteor showers. Unfortunately, the whole theory began to run into some trouble in the field—or rather, in the air. Modern snow-catching techniques had been evolved to allow the inspection of large numbers of snowflakes which were caught from airplanes and examined on the spot. It turned out that many nuclei looked nothing like ice crystals at all. Even some organic matter was found serving as nuclei. Worse, half of all the snow crystals examined in a typical sample had nothing that looked like a nucleus in them. Most damaging of all, samples of air taken from snow clouds showed that they could produce up to a thousand times more crystals than they had nuclei to produce them with.

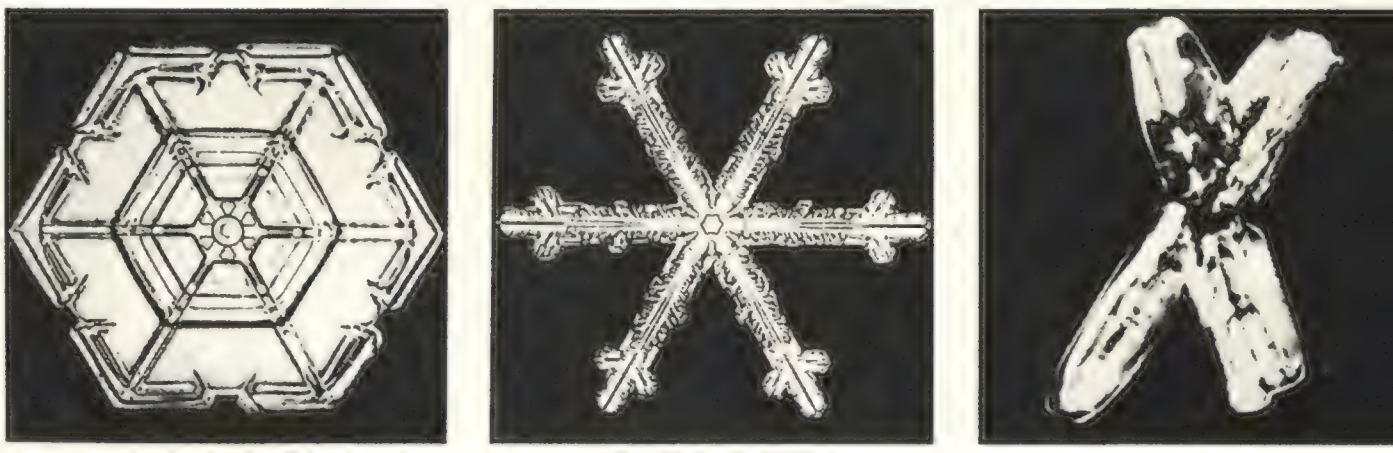
These facts led meteorologists to search for ways in which ice crystals could start each other forming. The first proposal had that classic simplicity that is often the test for truth in science. Because drops freeze from the outside in, it went, maybe when the inside freezes it expands and shatters the outside. These shards then form other crystals, and so on. Alas, laboratory tests showed there was nothing to it. Some drops did behave that way, but not many. Most just sprang a leak and let the excess fluid ooze out, where it froze.

Then, last year, John Hallet of the University of Nevada and S. J. Mossop, who works for a government research council in Australia, dusted off a suggestion made by a Portuguese physicist in 1933 and conducted a series of experiments which proved the existence of "splintering."

Splintering is what happens when an ice particle falls through a cloud of droplets. It collides with them, one after another, and leaves behind it a trail of tiny little ice particles, each of which forms the nucleus for another snow crystal. Hallet and Mossop appear to have shown definitely that it does happen, at least under laboratory conditions.

These new results have allowed scientists to draw the loop of their inquiry a good deal more tightly. Splintering seems to be the property of ice crystals formed from certain extra-large droplets. These droplets tend not to be found in the middle of continents; their peak concentrations are found in maritime air. They seem to depend on the presence of salt particles blown up from the ocean. This line of reasoning has suggested the possibility that pollution might tend to suppress snow formation, since a great many particles scattered into the air would all compete for the available water vapor and would prevent the extra-large droplets from forming. High levels of pollution, of course, are found along the coast and are thus in a position to compete actively with the salt particles which form the extra-large droplets that in turn freeze, splinter and trigger off snowfalls. This is still a recent idea, however, and it has yet to be confirmed.

One line of research with important practical applications is learning to use radar to measure the amount of snow falling in a storm. Snowflakes are so fluffy that they return a signal out of all proportion to the amount of water they contain. A radar operator looking at a snowfall in his scope has no way of knowing what portion of the signal strength results from the



These snowflake examples, mostly Bentley photos, show seven categories in the most widely used classification system. From left to right are plate, stellar, column, needles, spatial dendrite, capped column and irregular. Most snow, however, is only fragments of flakes.

quantity of frozen water falling and what portion is the result of its form, the degree of "fluff."

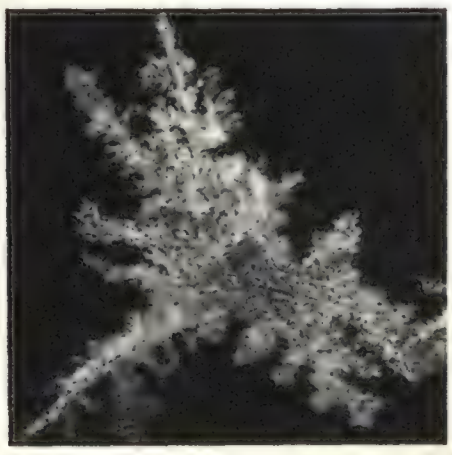
At present the only way we can determine how much water fell in a snow storm is to send surveyors out to measure it firsthand. This is dangerous, expensive work, yet, especially in the water-poor Western states, it is essential for flood control and water-use planning. A formula that would allow radar operators to predict, given certain measurable indicators, the rates at which snow crystals would aggregate into fluffy flakes, would save money—and lives. But according to Pauline Austen in the meteorological radar group at the Massachusetts Institute of Technology, we are nowhere near such a formula.

The question of why snowflakes are different remains one of the classic puzzles of science, but that they *are* different is part of our culture. Who has not heard, and believed without a thought, that no two snowflakes are alike? All snowflakes *look* very much alike; like little white dots. No doubt, if one examines them closely enough, there are differences to be found, but surely there is nothing remarkable about that. A single ice crystal might well contain some ten sextillion molecules: Considering all the ways those molecules can be arranged, the odds against any two completely identical snowflakes having fallen since the atmosphere formed some four billion years ago are enormous. But by the same analysis, no two grains of sand on the beach, no two waves in the ocean, no two hairs on the head are identical. Why all the fuss, then, over snowflakes?

Partly, perhaps, it is because snow crystals are so *similar*. For one thing, they are all six-sided. The iron law of crystal formation is that all angles must be multiples of 60 degrees. Hydrogen and oxygen atoms bind together to make water in only one way; when they freeze, water molecules nestle together in only one basic formation (a tetrahedron). The result is an invariable hexagonality which frames and emphasizes the differences among crystals because it sets a limit to those differences. By contrast, grains of sand are a chaotic riot of jumbled angles whose anarchy defeats any effort to face them squarely. Snowflakes have preserved a prolific individuality without abandoning an obvious membership in their species. It is not hard to guess why our beleaguered century might see something marvelous in this.

I prefer, however, to finger Bentley for some of the responsibility. The endless individuality of snowflakes was his favorite theme; he hammered away at it for more than 30 years in the popular press. On February 19, 1928, the *New York Times* carried *on its front page* the news that Bentley had found 100 new designs in one two-day blizzard! This was, he said, completely unparallelled in his nearly 50 years of experience. He was perfectly capable of writing at length about the patience required of a collector determined to capture some novel design, and then with no apparent sense of a contradiction blithely asserting in the next paragraph that every snow crystal was different. What Bentley meant by snowflakes were obviously only the tiniest fraction of all the crystals which fell. But it was these which became accepted by the public as what snow actually was. Could his audience have seen for themselves the mishmash of splinters, dust, fragments, needles and simple columns that constitutes the largest portion of a snowfall, they might have taken the same ho-hum attitude that we have today toward grains of sand on a beach.

Bentley once wrote of collecting, ". . . The thrill and the joy are mixed with a grave sense of responsibility and with fear. A new design even in a humble snowflake may be used and enjoyed by thousands, if successfully photographed. It is an idea that has dropped from the sky, a bit of beauty incomparable, that if lost at that moment is lost forever to the world. One may not hope to find another exactly like it. . . . And it may so easily be lost!" The story is told that in the last year of his life Bentley had agreed to lecture to a group of students in New Hampshire. He was having dinner with a friend when he suddenly noticed that it had begun to snow. He interrupted the dinner, canceled



the talk, and headed for the railroad station to catch the next train to Jericho.

"I'd love to stay," he told his friend, "but I can't afford to miss even one snowstorm."

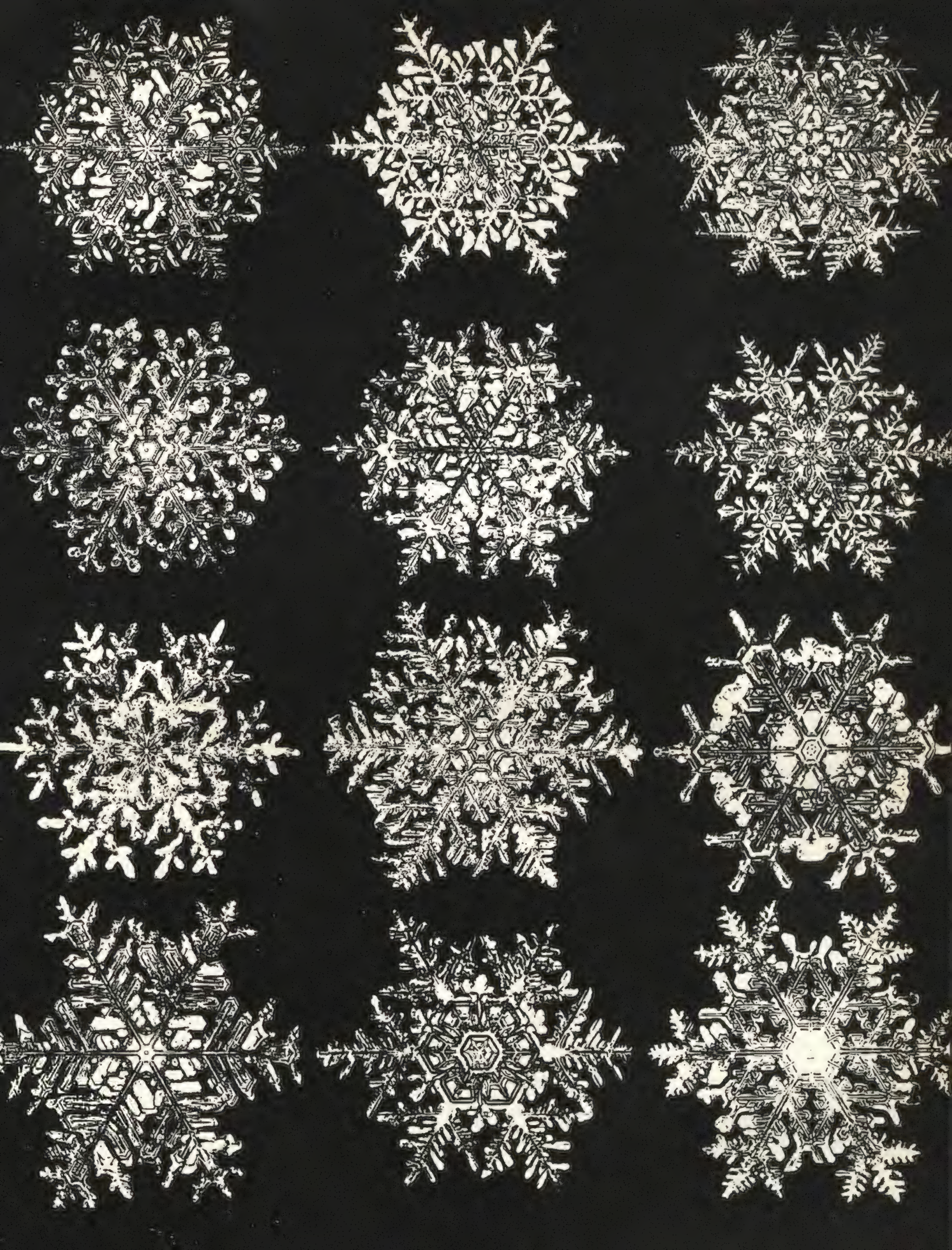
Why couldn't he afford it? What did he mean by the word "afford"? Was that the businessman talking? Or was it the thought that without him not even the smallest fraction of the ideas falling from the sky would be preserved, and the sense of this responsibility did not "afford" him the luxury of missing one storm? One thinks back to that moment in 1880 when Bentley at 15 first crouched over his new microscope. What was it that had such an impact on him? Was it a single crystal whose unexpected beauty exploded in an epiphany and then melted, barely before he could look twice? If so, might the rest of his life have been a half-conscious search for that first design? Was there something of a lament in his insistent observation that no two crystals are the same, that once one is lost it is gone forever? By this theory he would have meant that, at 66, he could not afford to let a chance to continue this search escape him.

Bentley was too private a man to leave us a good reason to pick among these speculations. The one I prefer—though it has no more support than any other—is that part of his ambition was to lay out a record of such unending diversity that we would be brought to where he began, in wonder, rapt and solitary. If this is true, then I think he would have enjoyed knowing that an international effort of some 45 years duration, involving airplanes, laser counters, computers, cloud chambers, x-ray diffraction analyzers, electron microscopes, and all the paraphernalia of modern science has not yet fully succeeded in bringing snow into the routine, bleached world of the textbook. The snow blossoms still harbor unpredictable, baffling, frustrating and refreshing surprises. They still lead us on.

Drawings, like these made by J. P. Ranboison in 1810, were once the only way to record snowflakes.

In a modern scanning electron micrograph, rimed cloud droplets adhere to an .008-inch ice crystal.

Typical of Bentley's work is this page of stellar snowflakes from his book, since reprinted by Dover.



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The old road twisted past cardon and boojum cacti in a mostly deserted desert country.

By Thomas W. Pew jr.

The blacktopping –and littering– of Baja California

A 1,000-mile highway traverses a once all-but-impassable land south of the border. But nobody's getting rid of the garbage

Our last night at La Paz, capital of the new Mexican state of Baja California Sur (south), I carried my stretched canvas cot up onto the roof of Carlos Carmona's library and slept under the tropical spring stars. I lay awake for a long while, retracing in my mind the last week's drive down the 1,000-mile peninsular highway from the Mexican-American border at Tijuana to La Paz. (In testimony to the new political and commercial status that Mexico Highway 1—"Numero Uno"—is bringing to Baja Sur, Mexican President Luis Echeverría Alvarez and his cabinet were in La Paz the weekend of my visit. They came for the inauguration of the new state's first governor, Felix J. Agramon Cota. Prior to this event, the southern half of the 800-mile peninsula of Baja California was a territory of Mexico.)

For my colleague, photographer Terrence Moore, and me this was our third trip together to La Paz in as many years, our first trip over the recently opened highway since it had been paved, and my own fourth trip into the Baja peninsula in the past year. Like others who had traveled Baja and visited La Paz before the new road, when getting there was more of a challenge than just following road signs and pavement, we had acquired a taste for the uncompromising beauty of this uniquely preserved part of the great Sonoran Desert. To us, La Paz was still the place John Steinbeck described in *The Log from the Sea of Cortez* (the Gulf of California's original name), where ". . . a cloud of delight hangs over the distant city from the

time it was the great pearl center of the world," and not the commercial hub of a newly developing state.

Thus, foremost in my thoughts that night on the library roof were the frequent entries from my road journal describing the irreversible changes caused by 1,000 miles of pavement suddenly thrust south from the border to the tip of the peninsula—a longer body of land than Italy.

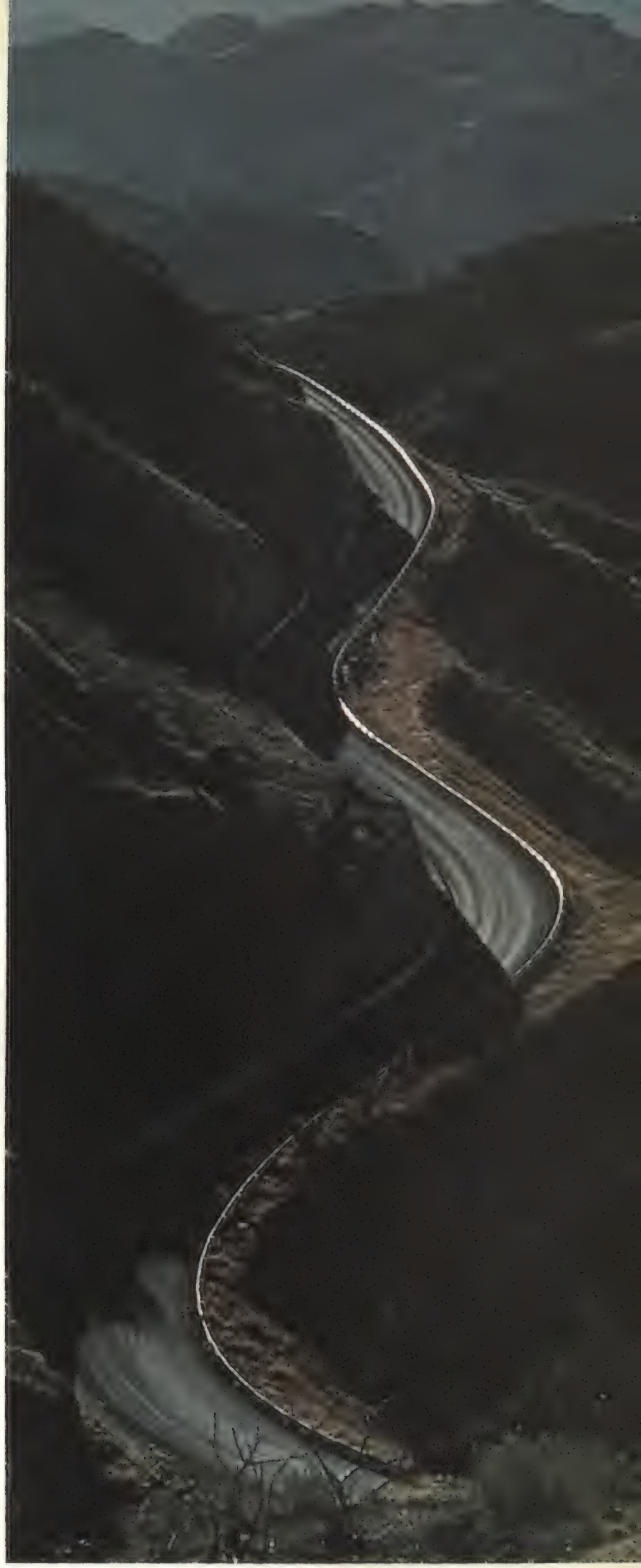
In the time since the road opened, the villages, the beaches and the people of Baja have begun a metamorphosis inexorably altering the life of one of North America's last inaccessible—and naturally protected—places. Juxtaposed with my immediate memories and notes of this week's drive were vivid recollections of traveling the old road, bumping over miles of sidetracks to remote villages or the ruins of 17th- and 18th-century Spanish missions, and of long hikes into mountains and along beaches beyond the ends of the most primitive roads.

To travel the old road (even if one never left the truck) was to experience Baja—to taste the thick dust, to feel its roughness rattle the spine, to know its heat pounding in the temples, and, beyond all these physical experiences, to feel the apprehension that rides with the traveler in a place where physical or mechanical failure of man or machine is not tolerated. I remember one day on a section of the old Baja road when we drove three hours and made only 15 miles. On the new road we were able to cover 377 miles in one day without really pushing. The old prepavement, prewarning-sign, preservice-station, premotel, pretrailer-park road, by today's standards, didn't even qualify for the name of "highway."

A veil drawn over the landscape

The new Carretera Transpeninsular, by contrast, insulates the traveler from the land he traverses. Like civilized roads everywhere, it veils the landscape with a translucent curtain of speed and comfort. And just as speed and comfort close out the passing landscape, they simultaneously make it accessible to more and more high-speed, nonseeing tourists. Meanwhile, the land and the resident people touched by such a road are launched on an accelerated physical and cultural trip that paves over old topographies and old values with imported ways and dependencies.

Still, there was hardly a Mexican among those I interviewed who wasn't ready and willing—even eager—to sacrifice the old landscapes, the old values, for the opportunity to "modernize" and improve his economic lot. Gone, at any rate, and for better or worse, are *The Forgotten Peninsula* and the *Baja California and the Geography of Hope* that the late Joseph Wood Krutch wrote about in the 1960s. Better than any oth-



The new road, while hardly arrow-straight, is hard-surfaced, easy going for cars and campers.

Photographs by Terrence Moore

Most of Baja's 55,634 square miles (about a third the size of California) were hard to reach until the new road (black line) opened up the peninsula.

Incessant waves have sculpted these sea stacks (which someone nicknamed "The Friars"), and

er writer, Krutch described the significance of the old, unpaved road when he wrote:

"Baja California is a wonderful example of how much bad roads can do for a country. . . . Bad roads act as filters. They separate those who are sufficiently appreciative of what lies beyond the blacktop to be willing to undergo mild inconvenience, from that much larger number of travelers which is not willing. The rougher the road, the finer the filter. Today any traveler who undertakes to drive a four-wheeled vehicle the length of the peninsula from border to cape will discover, not so very far below San Felipe, that the filter becomes very fine indeed."

A drive down the new highway leaves no doubt that the filter has been removed, while Krutch's "geography of hope" has been prematurely updated with all the amenities the average tourist could hope to find. But all is not blacktop in Baja. There are still miles of bad, well-filtered roads that are unlikely to be paved

isolated them from the land at Cabo San Lucas, the southernmost tip of Baja California.

in the near future, there are still remote beaches waiting for those willing to make the effort to "discover" them, and there are still mountains that will succumb only to the boots of those hearty enough to walk into them with provisions on their backs. And, in spite of the fact that the new highway will act as a funnel for much that is undesirable, much of the modernization along the new road has been done thoughtfully and with an eye to achieving a decent harmony with the environment.

Just south of the border at Tijuana we discovered our first improvement. For years a blight of uncontrolled and overcrowded shacks and trailer parks encroached on the beaches and sea cliffs of this area. Today the trailer parks and shacks have been largely removed by order of the Mexican authorities, and the unobstructed ocean view from the highway is back. Also, along this portion of the highway, the Mexican government is busy landscaping the shoulders and center strip with native flowering plants. For 66 miles south to Ensenada, the road is beautifully constructed as it winds through gentle hills, passing valleys of freshly plowed fields, olive groves, vineyards, stands of date palms, and bright green expanses of grain. In this part of Baja there is no hint of the arroyos, mountains and harsh alkaline deserts of the wilderness lying to the south.

At Ensenada, Promoter of Tourism Jesús D. Lima spoke with refreshing candor of the problems of the new highway. "When the road opened," he told us in response to a question about safety, "there were many accidents. Everyone from the north wanted to drive the new road and they thought it was U.S. Highway 101. But it isn't 101. It's a low-speed highway by American standards, and Americans have to treat it as such." (As it happened, we did not observe a single accident on our drive south, but neither did we see a single police car.)

One of Jesús Lima's biggest concerns over the new road is the trash problem—a problem we soon observed for ourselves in areas where we had camped before. "Baja is getting dirty," he said flatly. "It's full of garbage and throw-away cans, and we can't control that. Our desert is beautiful. It must be kept clean.

"I've been driving these Baja roads for years, and it's not the same now. You find a nice spot now," he said, snapping his fingers for direction, "and there's the trash—right in view. You see the trash we have now —imagine in the next 20 years what it will be like."

Heading south from Ensenada, we noticed that the road was well marked with a profusion of new international warning signs (a lack of signs had been an early criticism of the new road). In spite of the fact that the pavement narrows to 19½ feet in some stretches (not much room to spare between a truck and a motor home), and that the curves are sometimes banked in the wrong direction, that animals sometimes stray onto the pavement and that some drivers prefer to straddle the center line, the road is safe if one drives cautiously and obeys the warnings. One oft-repeated caution that caught our attention said the highway was "designed to promote economic development. NOT FOR HIGH SPEED DRIVING."

In fact, at high speed you can whiz right past such well-worth-seeing sights as the charmingly incongruous, all-metal church at Santa Rosalía, a onetime French mining company town on the east coast. Designed by Alexandre Gustave Eiffel for a Paris exposition, the church was knocked apart, crated and shipped off to be a little bit of France overseas. So around the turn of the century it wound up in Baja, where the people reassembled it and have worshiped in it ever since.

At Santispac Beach on Bahía Concepción, 643 miles south of the border, Moore and I witnessed our first example of the negative impact of economic develop-

Thomas W. Pew jr. of Tucson walked and drove thousands of miles of Baja back roads and highways gathering material for this article.

ment and the full horror of the trash problem that is raining down on the peninsula. We had camped on this beach exactly two years before, so we had something to compare with what we found today. A woman in the government tourist office at Santa Rosalía had hinted at the changes at Concepción when she said, "the bay looks like a small city at night, there are so many campers there," but she hadn't prepared us for what we actually found.

Bahía Concepción is, without question, one of the most subtle and, at the same time, spectacular seascapes in the world. The main bay is formed by a long blue finger of the Gulf of California thrusting 22 miles southward into the peninsula and varying in width from two to five miles. Its shores are lined with beaches of varying texture, and the backdrop all around is of mountains which both frame the color of the sea and also protect the shore from foul weather. The water is clear and bright, and because of the protection and gently sloping bottom of the beaches, it is a perfect place for floating and gazing. At one point there is even a freshwater spring (a rarity in Baja) that bubbles up at the shore line—perfect for bathing after a hot trip.

In no other place that I know of in Baja is Steinbeck's description of the elusive attraction of the Gulf more accurate than at Concepción. "Trying to remember the Gulf," he writes in *The Log from the Sea of Cortez,* "is like trying to re-create a dream. This is by no means a sentimental thing, it has little to do with beauty or even conscious liking. But the Gulf does draw one. . . . There is always . . . the positive drive to go back again."

So Terry and I were back again at Concepción. But the campsite we remembered, and the beach in both directions from it, had been converted into the trash dump and open latrine for one of the largest concentrations of North Americans anywhere in Baja. Variously colored streamers of toilet paper clung to the mangrove growing near the shore, and beneath nearly every bush was a half-exposed pile of excrement. Walking onto that beach produced the physical sensation one has when forced to use a really filthy rest room. Two half-filled barrels were placed back a bit from the beach and were surrounded by a pile of trash, much of it bearing the "Made in USA" mark.

A fisherman's wife at Bahía Concepción shows that the neighborhood sharks have capacious jaws.

The traveler to the bay is well advised to have a sturdy rake and shovel, and to be prepared for a half-hour or so of police detail if he wishes to have a clean campsite. For us the comparison with the beach we remembered was too much—we left, preferring the dangers of a night drive. It will take a major cleanup effort on the part of tourists and Mexican authorities to restore and then maintain Bahía Concepción, an effort made more difficult by the distance required to haul the trash out.

Jesús Villalejo, a 29-year-old fisherman and native of Baja whose family of 60 (including a grandfather aged 102) spans five generations and comprises the entire population of the fishing village of Juncalito, has a different view of the trash problem.

Jesús likes the paved road for his own travel ("be-

Along the road are many whimsical works of art such as this (unsigned) cactus wearing a hat.

At traditional Baja service stations, the gas was siphoned from oil drum to can for pouring.

fore, it was better to walk than drive"), but he doesn't like the trash ("The ranch people say it used to be rare to find cans to dip water. Now there are cans everywhere"). "The government collects $1 for people to camp on the beaches," he says, "but they don't collect the garbage. Americans don't just throw their garbage around, nor do the Mexicans; they often leave it in a neat pile, and they're pleased to pay a dollar a day, but then it isn't picked up."

"They come for the money every day," he emphasizes with a smile, "but for the garbage, once a year. I've never seen the garbage taken from that place Bahía Concepción."

Carlos Carmona, founder and principal teacher of the Colegio Intercultural John F. Kennedy (and on whose library roof I slept in La Paz), has a stronger opinion of the trash problem that Numero Uno is bringing to Baja. He sees the road as a "gross" thing, "opening up a land that cannot sustain the impact."

"When the officials here talk of concern for the environment, they're mouthing what they've heard from others, or it's something foisted on them from the outside," Carlos said. " 'Environmental' is a new word here. The development people don't really care. What's kept people away so far are a lot of reports on

bad facilities here. Eventually, by its own force, the road will have a negative effect. It's inevitable. Numbers alone are enough to change everything."

Perhaps the most colorful and generally held opinion about the blacktopped road was expressed by Rudy Valez, resident of La Paz since 1936, former customs agent, former sport fisherman, former taxi driver, father of 14 children (the oldest 36, the youngest nine), and currently owner-manager of a trailer park on the outskirts of La Paz.

Rudy told us that "the road is more good than bad. The highway brings business—people of Baja California and from the mainland—jobs for everybody . . . and we need it. If you have a little ranch, a few chickens and goats, you need it.

"When I came here in 1936, milk sold in tequila bottles. Fifty centavos a bottle. A little kid took all day to sell milk and eggs. It was hard work to get that. Now we have pasteurized milk. Change—the whole thing. I like to see my people get something to do. The highway does it. Without the highway we have very little. Now business, dollars, work. If you got family with five boys, all work. Even with people from the mainland there's work. We have a chance to develop."

Maybe the Mexican authorities will solve the trash problem, but I remember that William Weber Johnson, in a book published in 1972, *Baja California,* also said "nothing short of a cataclysm" could alter Bahía Concepción. Well, it is altered, as by a cataclysm.

Lying on the roof of Carlos' library my last morning in La Paz, I awoke slowly with the rising sun. Opening my eyes I saw long-winged frigate birds sailing effortlessly in from the bay: black check marks against the deep tropical sky looking exactly like a child's drawing of the archetypal bird. The sun was followed by a cool onshore breeze and on the breeze rode the fresh smell of the gulf, the bark of a distant dog, the crow of a rooster and the toll of a Sunday bell—all giving a horizon to the silence. These rooftop-level sounds and sensations of La Paz *antigua* lasted for some moments, until dispelled by the honk of a car horn and an awareness that the steady rumbling of air-conditioners underlay the silence.

Somewhere in town President Echeverría was preparing for an all-day meeting with Baja *campesino* representatives. There were plans to be made. Grievances to be listened to. Lands to be divided. More paved roads to be decided upon. And there were the nagging problems of trash and crime to be discussed by officials from Mexico City in a closed meeting at some modern hotel. April 5, 1975, was, from an environmental point of view, significant: It marked the official beginning of the development of Baja California Sur. The response from the people who were squeezed into La Paz's newest and biggest movie theater for the occasion was thunderous. But what will live in Baja from now on isn't exactly what lived in Baja before. The question is: Will there be room for both?

Later, as my jet took off and banked out over the blue bay of La Paz, I remembered still another line from *The Log from the Sea of Cortez*: "On the water's edge of La Paz a new hotel was going up and it looked very expensive. Probably the airplanes will bring weekenders from Los Angeles before long, and the beautiful poor bedraggled old town will bloom with a Floridian ugliness."

Now it's really happening, John Steinbeck. You wouldn't recognize the place.

Uncollected trash middens—spoor of the tourist—pile up at Bahía Concepción. But every prospect still pleases the eye down at the end of the line, right, where land and sea meet at rugged Cabo San Lucas.

By David Bourdon

The sleek, witty and elegant art of Elie Nadelman

For a time he was America's most inventive sculptor, but then he fell into artistic limbo—from which he is just being rescued

As artists' reputations go, few have had higher ups and lower downs than that of Elie Nadelman, a sculptor who was born in Warsaw in 1882. In Paris, London and New York, during the early decades of this century, Nadelman was considered to be one of the art world's most audacious modernists. By 1930, however, he found himself somewhat outmoded, whereupon he entered an eclipse that continued long past his death at the age of 64 in 1946. Most books on modern art history give him, at best, only a passing mention.

Thanks to a revisionist trend in museum circles, which aims to resurrect submerged reputations rather than attempt to establish new ones, Nadelman becomes the subject of a major, eye-opening exhibition of 142 of his sculptures and drawings now at the Smithsonian's Hirshhorn Museum and Sculpture Garden. The show, which first opened last fall at New York's Whitney Museum, will run through February 15 in Washington, D.C.

Nadelman's own work was inspired by a vast range of styles, including the idealized statues of ancient Greece and the elaborate costumes of contemporary stage and screen. Unlike most of his contemporaries, he was on familiar terms with—and comfortable with—the styles of classical and Hellenistic Greece, as well as the neoclassical style that flourished all over Europe in the late 18th century. His imagination was also fired by the sculpture of Michelangelo, Giovanni da Bologna, Clodion, Houdon and Rodin. In addition, he borrowed some stylistic devices from Art Nouveau, including the sinuous, volume-defining lines that appeared in Aubrey Beardsley's illustrations and the rigid, mannequinlike profiles of people that appear in Seurat's drawings. Nadelman's work owes part of its wit, charm and liveliness to the way he obviously kids other styles. His detractors among his contemporaries, who considered his work mannered and overly imitative of Greek sculpture, dubbed him "Pheidiasohn" and "Praxitelmann." Viewed with today's kindlier hindsight, however, Nadelman was always in pursuit of cool, elegantly defined forms.

Nadelman, who was born into a prosperous family of Polish Jews, was the son of a jeweler. As a youth, Elie became an officer candidate in the Imperial Russian Army, but eventually quit soldiering to study at the Warsaw Art Academy. He soon realized that Warsaw was an artistic backwater, so in 1904 he settled in Munich for six months, then moved on to Paris. In the French art capital, Nadelman at first associated only with the artists, writers and musicians in the Polish colony, a distinguished group that included the harpsichordist Wanda Landowska. He avoided Beaux-Arts courses, but drew from life at the Atelier Colarossi and eventually set himself up in his own studio, where he lived with an English girl and, later, a succession of Polish and Hungarian models.

He was handsome enough to be dubbed "Elie *le beau,*" and he cut a dashing figure throughout the world of "Upper Bohemia." He spoke Polish, Russian, German, French and English and sounded didactic in most of them. Where esthetics were concerned, Nadelman could be eloquently dogmatic, lecturing his dinner partner rather than engaging in a conversation in which ideas were exchanged (he rehearsed his speeches before going to parties). He let it be known that he was anti-Fauve, anti-Cubist, anti-Futurist and anti-anything that repudiated the past.

Gertrude Stein considered Nadelman the "coldest man" she had ever met, but she later published a short, rhapsodic essay about him. Her brother Leo became an early and avid collector of Nadelman's work. In 1908 Leo Stein took Picasso to Nadelman's studio, where the Spanish artist was apparently impressed by a plaster head of a man (now destroyed) in which the facial planes were expressionistically distorted into a series of reciprocal curves. Nadelman's plaster bust evidently predates Picasso's earliest (and much superior) Cubist heads of 1909. (Despite this influence on Cubist art, Nadelman remained intellectually and temperamentally opposed to the style. In later years, however, he became embittered when he was not recog-

David Bourdon is the art critic of the Village Voice. *He wrote about the popular Rogers' Groups in* SMITHSONIAN, *May 1975.*

Museum of Modern Art, New York; Philip L. Goodwin Collection, 1958

Woman at the Piano (c. 1917) is among many figures from this period that were influenced by American folk art; stained and painted wood, 35 1/8 inches. The original piano was lost.

Photographs by Yale Joel

Lent anonymously

Spirited *Tango* (c. 1919) is another "folk-art" piece; painted cherry wood and gesso, 34 inches.

Miss Mala Rubinstein, New York

Marble *Man's Head* (c. 1911) intentionally evokes Mercury, but "helmet" is more like a bowler.

nized as a progenitor of Cubism.) Nadelman's work and personality both generated so much controversy that Matisse reportedly posted a sign in his studio, warning students: *"Défense de parler de Nadelman ici"* (It is forbidden to talk about Nadelman here).

Between 1905 and 1912 Nadelman made a large number of works that are classically inspired, but modernistic in feeling. He carved dozens of idealized marble heads that are seemingly "Greek," with sharply chiseled profiles and schematically patterned hair. Some of the heads are as exquisitely modeled, and as cold and lifeless, as any masterpiece of neoclassical sculpture by Canova or Thorvaldsen. Other heads attain a degree of abstraction (an egg wearing a chignon, for instance) that is the antithesis of Greek art. Most of the marble visages are crowned by elaborate coiffures—or a distinctly un-Greek hat. *Man's Head,* for instance, suggests a Greek dandy whose rakishly tilted hat has less in common with Mercury's helmet than with the modern bowler (above). In works such as this,

Hirshhorn Museum and Sculpture Garden, Washington, D.C.

Elaborately coifed head is a detail of *Hostess* (c. 1918-19); full figure in painted cherry wood.

Nadelman succeeded in bridging the gap between ancient ideals of beauty and contemporary fashion.

In 1911 Nadelman's London exhibition was bought up in its entirety by Helena Rubinstein, who subsequently placed the marbles in her chain of beauty salons in London, Paris, Boston, New York, Buenos Aires and Melbourne. Rubinstein was a canny art collector, but she also recognized that Nadelman's neoclassicizing work could serve as the trademark of her beautification business. The glassily smooth, blemish-free complexion of Nadelman's "ideal" heads were what Rubinstein's customers wanted: perfection in a classic sense. (Throughout Nadelman's life, Rubinstein was his most generous patron.)

At the outbreak of World War I, Nadelman attempted to enlist in the Russian Army but was told it was impossible to cross Europe. Instead, he went to London, where Mme. Rubinstein helped him get passage on a ship bound for New York. Nadelman's Paris career had lasted ten years—perhaps the most exciting

Wadsworth Atheneum, Hartford; Philip L. Goodwin Collection

Dancer (c. 1918-19): folk-art spontaneity, with sophistication; painted cherry wood, 28¼ inches.

decade in modern art—and, as cosmopolite émigrés go, he was well equipped to bowl over the New World.

In New York Nadelman slipped almost effortlessly into the art establishment. Some of his art had preceded him the previous year (the notorious 1913 Armory Show included one of his sculptures and several drawings); during the following year, he mounted his first one-man show in New York at Alfred Stieglitz's Photo-Secession Gallery ("291"), where he showed a plaster version of *Man in the Open Air*.

This work is in Nadelman's so-called tubular style, which plays with the very concept of sculpture by transforming solid form into almost liquid volumes that flow effortlessly in this or that direction. It is an extremely mannered style but, as one might expect from Nadelman, as polished as it is elegant. The sculpted man wears a helmetlike hat but, except for a bow tie, could be simultaneously nude and clothed; he leans on the stump of a tree, a structural convention that dates back to antiquity.

For the first six years after his arrival in New York in 1914, Nadelman was the most formally innovative of all American sculptors. The period was not, admittedly, the most adventurous in the nation's artistic history. Marcel Duchamp and the New York Dadaists were doing their best to enliven the scene, but Nadelman had a more far-reaching effect, at least on a short-term basis. Among the sculptors who admired Nadelman, and most likely were influenced by him, were Paul Manship, Gertrude Vanderbilt Whitney, Gaston Lachaise and Hugo Robus. Painters such as Guy Pène du Bois, George Bellows and Kenneth Hayes Miller were also impressed, as much by Nadelman's intellect as by his style. As Miller told Nadelman: "We all go by what you do."

Hirshhorn Museum and Sculpture Garden, Washington, D.C.

Ceramic figures, glazed and otherwise, anticipate final, fragmentary works (opposite, at bottom).

Nadelman produced his most important works—a suite of wood carvings—soon after his arrival in this country. These wooden figures merrily parody archetypal figures in modern society, but are rendered in a quasi-archaic style that suggests the cigar-store Indians and ships' figureheads of American folk art. Most of the figures are musical—a chanteuse, pianist (p. 85), orchestra conductor, a couple dancing a furiously angular tango (p. 86). All are carved from relatively grainless cherry and subtly colored with gesso to create the illusion of fading paint. These delightfully fey creatures signify a change in Nadelman's ideals. Instead of the pictures of antique sculpture that he used to keep by his workbench, he now substituted magazine illustrations of circus performers, chorus girls and society matrons.

Success and a fortunate marriage

For the next 15 or so years, Nadelman was a highly visible and much sought-after figure in New York's own Upper Bohemia and high society. He was a success by most worldly standards, not the least of which is wealth. In addition, he had the good fortune to fall in love with a woman who was reported to be a millionairess. Mrs. Viola Spiess Flannery was the widow of a lawyer and the mother of two grown daughters. She was in her early forties and Nadelman was in his late thirties. They married in 1919.

During their first year of marriage, Elie and Viola purchased a townhouse (formerly owned by the brewer Jacob Ruppert) on Manhattan's East Side. Nadelman had the interior of the house gutted and, as part of the renovation, designed a top-floor studio with a huge skylight. The interior of the house was shockingly white and seemingly furnished with little more than a large collection of Roman glass and marbles. The Nadelmans usually entertained on Sunday evenings and their manner of living was, if not Gatsbyesque, decidely extravagant.

They also acquired a 24-room "summer cottage" in Riverdale-on-Hudson, New York. The so-called cottage, which was built about 1840 in a style known as Hudson River Bracketed (because of the decorative brackets that support the overhanging roof), was a near ruin, but beautifully sited on a 16-acre estate, sheltered by an enormous, centuries-old copper beech and overlooking broad fields that sloped down to the Hudson. In addition to restoring the house, the Nadelmans cultivated orchards and grape arbors and installed horses, geese and sheep on their property in order to heighten the idyllic atmosphere. In 1922 Viola

gave birth to their first and only son, named Jan, who keenly remembers his pleasurable childhood on the Riverdale estate, which—with its horses and sleds—offered almost anything a boy could want.

Between 1923 and 1928 the Nadelmans spent more than half a million dollars in assembling a huge collection of folk and peasant art. Viola, who had been educated in Germany, was a connoisseur of antique lace and embroidery and Nadelman developed a passion for 18th- and 19th-century American "folk" paintings and carvings. They collected textiles, iron and glass from Hungary, Germany and France. Each summer they went to Europe and always returned with an ample load of treasure. Being intrepid collectors, they even bid (unsuccessfully) against John D. Rockefeller jr. for the Unicorn tapestries, now one of the great treasures of the Cloisters in Manhattan. In order to house their burgeoning collection, the Nadelmans built a museum about 400 yards downhill from their Riverdale cottage.

During the 1920s, when Nadelman was most active as a collector and socialite, he still managed to produce a considerable quantity of sculpture. Among the most interesting are a set of painted bronzes, such as *Man in a Top Hat* (p. 91), a near-caricature that suggests a kinship with American folk art. At the time Nadelman made these works, most artists considered painted sculpture to be somehow impure. But Nadelman, fully aware that the ancient Greeks had painted their statuary, blithely continued to color his work.

The Nadelmans' extravagant life-style was abruptly halted by the 1929 Wall Street crash, which obliterated what was left of their fortune. They were forced to sell their Manhattan townhouse and retire, more or less, to their Riverdale house. Nadelman was temporarily without a studio and helpers—not to mention all the clients who virtually vanished in the Depression, never again to commission portrait busts and decorative statuary for their estates.

The problems of making ends meet

Nadelman's one-man show in Paris, in 1930, proved to be the last exhibition of his work during his lifetime. Economically, the 1930s were a harrowing decade for Nadelman, who unhappily discovered that professional encouragement was almost as scarce as dollars. Though he carved several small pieces in marble, he ceased to produce works in bronze or wood. He increasingly modeled in cheaper materials—ceramics, terra-cotta, papier-mâché and experimental plastics.

To make ends meet, the Nadelmans were forced to sell off some of their real estate and, eventually, their folk-art collection. The dismantling of their collection, Nadelman wrote to a friend, "did also dismantle some-

Hirshhorn Museum and Sculpture Garden, Washington, D.C.

Bronze *Horse* (c. 1914) may look back to classical models, but is wholly contemporary in feeling.

Nadelman's final works were these tiny, enigmatic figurines, left in his studio at time of his death.

thing in me." Choice items from the collection are known to exist in various places, but so much has been lost to history that the extent and quality of the Nadelman collection is, today, mostly legendary.

Nadelman became understandably wary of New York's art museums, since they had given him nearly nothing in the way of moral or financial support. When the Museum of Modern Art wanted to borrow one of his works for a show it was organizing for the 1939 World's Fair at Flushing Meadow, Nadelman refused, partly because the museum had never bothered to acquire for itself any of his work. And in 1944, when the Whitney Museum wanted to include one of his early works in a "pioneers of modern art" show, Nadelman again refused. By keeping his own work out of public sight, he inescapably contributed to the decline of his reputation.

Nadelman, according to art-world legend, became increasingly disillusioned, embittered and reclusive toward the end of his life. His son, Jan, however, disputes this view. By Jan's account, Nadelman simply dropped out of the art world, for which he had no use, and consorted mostly with people in the neighborhood who shared his interests, especially billiards (which he played in the billiard room of his house) and bridge (which he played expertly). Many of his neighbors did not know he was an artist. If visitors did ask to see his art, Nadelman showed them his raspberries instead.

After Nadelman's death in 1946, hundreds of hand-size female figurines were found in his studio (p. 89). Made of terra-cotta or plaster, these miniature figures are cursorily modeled and often have bloated bodies and blurred faces (though sometimes with features penciled in). These strange creatures, the last objects from Nadelman's hands, are reminiscent of nearly everything from ancient cult figures, Kewpie dolls and Mae West to circus performers, burlesque queens and chorus girls. Despite numerous interpretations, the figurines remain totally mystifying, the baffling culmination of a lifetime in sculpture.

Nadelman himself was apparently pleased with the figurines. According to Jan, "He told my mother he had achieved what he wanted in these final things." Nadelman evidently wanted to mass-produce a low-cost type of sculpture, for which these hundreds of figurines were potential prototypes.

When Mrs. Nadelman died at age 84 in 1962, the house passed to her son, who was then in the Foreign Service (he retired in 1972 to the Riverdale cottage, which he and his wife Joyce have beautifully restored).

The refurbishing of Nadelman's reputation is almost entirely owing to the efforts of Lincoln Kirstein, a founder and director of the New York City Ballet, art critic, collector, patron and author of numerous books, including the recent *Nijinsky Dancing*. Though he never met Nadelman, Kirstein helped organize and wrote the catalog for the first posthumous retrospective of Nadelman's work, held at the Museum of Modern Art in 1948. That show, organized with the full cooperation of Viola Nadelman, was ill-timed: The art world was too preoccupied with new developments, such as abstract expressionism, to pay much attention to Nadelman's achievement. In 1973 Kirstein published his definitive monograph on Nadelman (The Eakins Press; New York), a brilliant study that necessitates a reappraisal of the sculptor.

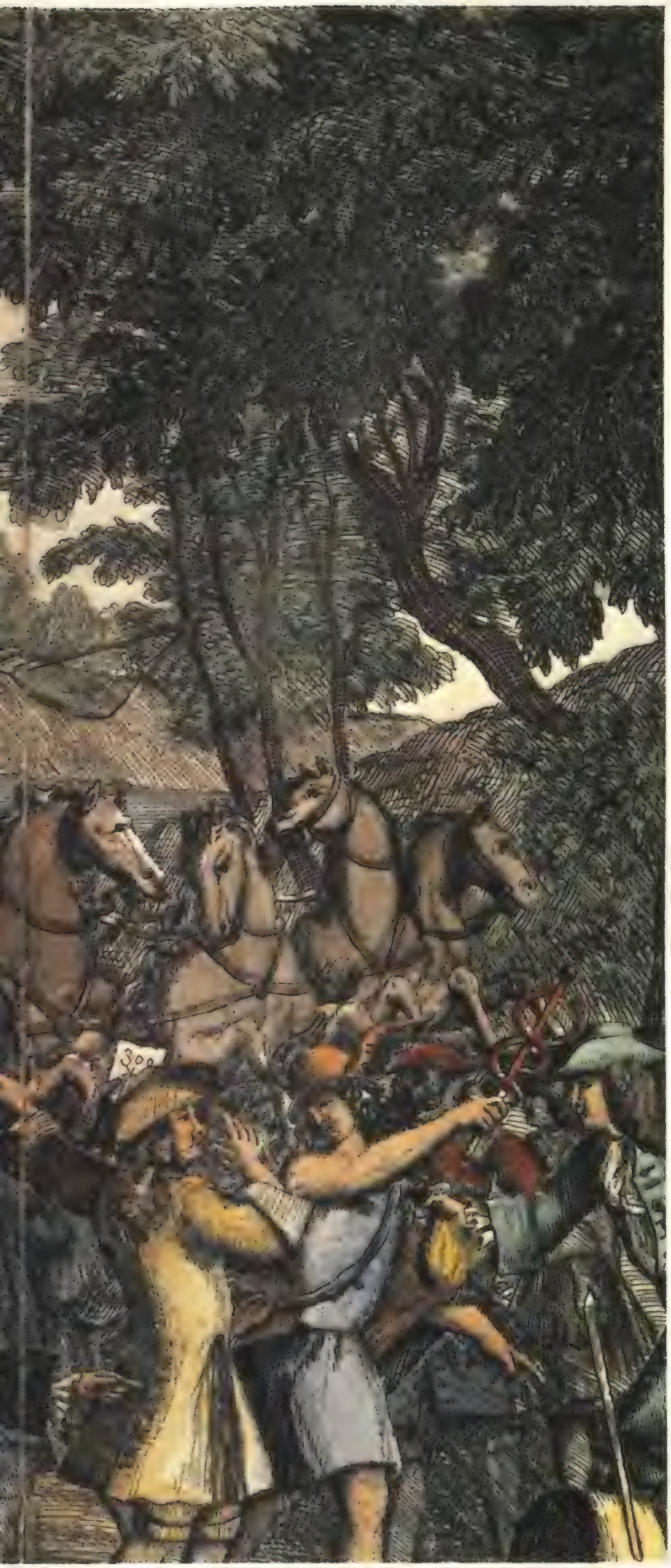
It is poetically just that the current Nadelman retrospective appears at the Hirshhorn Museum, since Joseph H. Hirshhorn was one of the handful of collectors who expressed any interest in Nadelman's work during the decades of neglect. With 20 pieces by Nadelman, the Hirshhorn Museum has the largest public collection of his sculptures.

The Nadelman revival stems in part from the renewed interest in America's figurative sculpture of the early 20th century. The booming popularity of American folk art and the international style of Art Deco also have helped attune our perceptions to what is most singular in Nadelman's own style—exquisitely refined forms that derive from traditional models and express a modern sensibility. Though he belonged to no school and pioneered no movement, he was unquestionably a master in almost everything he touched. His work is full of wit, charm and invention; it will probably appear even more original as time goes on. Happily, it is not likely that Nadelman's reputation will again diminish.

Man in a Top Hat (c. 1927) is in painted bronze, a style most artists of the time considered "impure."

Museum of Modern Art, New York; Abby Aldrich Rockefeller Fund, 1948

Dutch cartoon of the day has Harlequin driven by Pallas Athene through a throng clamoring for stocks. He tosses out job offers instead to prove they can't get something for nothing.



By Robert W. Minton

John Law's bubble: bigger. . . bigger and then BUST!

A wily Scot inspired the word 'millionaire' and started world's first modern financial panic over a land tract loosely called Mississippi

The great stock market crash of 1929 is our benchmark of financial catastrophe. But there was an earlier one, smaller in scope yet more intense and more improbable, called the Mississippi Bubble, which burst in 1720 in Paris. It was the responsibility of one man alone, John Law, and his name long remained a warning against speculation and the use of paper money.

"Few men in history have wielded more power than Law possessed," Earl Hamilton, Professor Emeritus of the University of Chicago, has said of this Scot who put together a microcosm of modern finance.

On Christmas Day, 1719, Law, a tall, well-tailored gentleman, walked to the altar rail of the baroque church of St. Roch, Paris, and took his first public communion as a Catholic convert. Eleven days later he was named Controller-General of Finance for France. Until this time Law had been considered by many the chief official of the government of the Duke of Orléans, the rakish regent ruling for the boy Louis XV, but as a Protestant he had no title of authority other than as director of the Royal Bank. Now he became one of the richest men in the kingdom—he owned several chateaux and seven houses on the Place Vendôme. He had virtually dictatorial control over the French economy, then experiencing a boom that defies description.

Law settled down to reform the unjust taxation that favored a few and burdened the mass of French peo-

Author Robert W. Minton, who is an authority on John Law, published three books in 1975.

ple. It was his last constructive effort for the kingdom. For the intricate System, as it was called, that he had put together, was about to disintegrate, and the first financial panic in modern history would reverberate for generations.

The boom had begun less than a year before when the price of a share in Law's Western Company began advancing from 500 livres (gold equivalent today—$865) to 1,000, 5,000 and eventually to 18,000. A stock market had sprung up spontaneously in the tiny rue Quincampoix in the district of goldsmiths and jewelers on the Right Bank. Crowds became so great that a detachment of soldiers was called in to close down the street between hours of dusk and dawn.

Transactions were carried on without regulation and in improbable places. A cobbler rented his bench for 200 livres a day. A hunchback reputedly made more than 100,000 livres by letting his hump be used as a desk top. Every inch of space was occupied. Those who wanted to witness the spectacle of greed could rent a chair for the purpose.

Law wore an air of "haughtiness without insolence" during his rise.

Fortunes mushroomed. An Englishman named Guesche made four million livres and gave 500,000 to his servants. The widow Chaumont of Namur came to Paris to collect a debt, received state bonds selling at 60 percent discount and traded them for some of John Law's shares. Eventually her fortune came to 100 million livres, with which she bought a chateau, Gobelin tapestries and entertained friends with feasts of whole oxen. Waiters, chimney sweeps, lackeys and beggars were among the profiteers on the rue Quincampoix.

"God never created men out of nothing faster," Montesquieu commented. And it was at this time that the term "millionaire" was coined.

Gold rush to Paris

Stories were told of the nouveaux riches. A cook turned up at the Opéra loaded with diamonds. A simple soul served soup out of a handsome bowl bought with her profits, not knowing that it was a particular kind of chamber pot used discreetly by elegant ladies during long church services. Foreigners rushed to Paris, paying black market prices for transportation. So many English and Dutch came in the summer of 1719 that the supply of meat ran low, because as Protestants they did not fast.

No one had any idea why it was suddenly possible to get rich. There was no time to reflect, only time to make and spend money. The regent himself set the tone with mistresses and friends he called roués (dissolute from being broken on the wheel, *roue*, of debauchery).

Law later admitted "If I had the work to do over again, I would proceed more slowly but more surely." What, exactly was Law's work?

He was born in Edinburgh in 1671 to a prosperous goldsmith, and his friend, the Earl of Stair, later described him as having "a head fit for calculations of all kinds to an extent beyond anybody." As a handsome youth in London, he gambled, played tennis, fenced and was known as Beau Law. Inveigled into a duel, "he inflicted one mortal wound the breadth of two inches and depth of five inches," and was swiftly condemned to be hanged.

An escape from King's Bench Prison was arranged, but thenceforth John Law was an exile from England until late in his life. The young man now lived soberly and earned his living by speculating, particularly in foreign exchange. He mastered all there was to know about modern commerce and banking, learned to speak and write fluent French. An aristocratic young lady who was descended from Anne Boleyn left her French husband to wander around the Continent with Law.

In his thirties Law developed an obsession to start a bank and argued his case in a remarkable tract, *Money and Trade Considered,* published in 1705 in Edinburgh. Having seen how the Bank of Amsterdam had stabilized the finances of that prosperous trading country, he appealed to countries without banks to let him start a bank for them. He was turned down flat by Scotland.

But he had approached various French people of importance and finally, when he was 43, he settled in Paris with considerable éclat. It was the eve of Louis XIV's death, and France was near bankruptcy. "I shall," Law proclaimed to anyone who would listen, "make gold out of paper."

His best listener proved to be the old king's nephew, Orléans, who became regent in September 1715. By spring, Orléans, desperate to improve finances,

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had arranged for Law to charter the first French bank, a private company called *La Banque Générale*. Backed partly with Law's own capital, it had the power to issue paper bills looking like modern English five-pound notes, signed by John Law. This was the first paper money to have general circulation on the Continent. At first it was issued in limited amounts. Law was guided by his knowledge of goldsmiths' receipts, which passed as money—"good as gold."

The success of the bank stimulated an improvement in commerce and stirred in Law an ambition for bigger things. His original thought in *Money and Trade Considered* had been to link *trade* to banking. Now he found his opportunity in moribund French concessions in America. He was granted broad rights to develop Louisiana, a semitropical, pestilential land of sand and swamp. Calling his new venture *La Compagnie d'Occident,* the Western Company, he offered shares in it to an indifferent public in 1717.

In France there were stories about the region's unexploited wealth, and Law's agents saw to it that they were repeated. A report told of gold, silver, lead and "a very precious rock from which natives removed certain green stones, beautiful and hard, resembling emeralds." Skepticism was widespread. So Law, with the regent's unlimited credit behind him, now began to diversify the Western Company, acquiring the monopoly on tobacco. A grand design was developing.

As Law explained in a memorandum to Orléans, his bank was not his best idea. "He had another worth 500 million that would cost people nothing." He wished to create a vast company that would control all French foreign trade and much of the internal finances. It took him two years to put this together. He acquired the languishing slave-trading Company of Senegal, outbid rivals for the tax collecting concession, won the contract to mint royal money and conglomerated the whole in a reorganized Indies Company.

Meanwhile, the regent converted the bank into a royal bank under Law's management, but with the young king's enormous prestige behind it. By the spring of 1719 the Royal Bank had greatly increased the issue of paper money. Law intended to market new issues of stock in his "conglomerate." By declaring that paper money would not be devalued, Law made it more desirable than specie.

To spur speculation, he introduced in Paris a practice he had seen of dealing in futures. With the stock selling at 300, he offered to buy it back in six months for 500. Immediately the rumor ran that Law knew of some reason why the stock would, in fact, sell for much more than 500 by that time, and a buying wave quickly drove the price to 1,000.

Cartoonist shows Law hawking shares by light of an illusory magic lantern.

Here was the beginning of the rue Quincampoix madness. Seeing customers eager for shares, Law started issuing new stock, but with the proviso that only those holding the old shares could participate. This of course drove the old shares higher still. The old shares were called "mothers," the new shares "daughters," and a third issue became "granddaughters," which of course were available only to those holding "daughters." Liberal time payments established margin accounts allowing great profits on small investments. Law retained large blocks of stock himself and distributed them under the regent's guidance to favored people.

A royal servant was given shares worth 25,000 livres, which rose to 200,000. The regent created pensions for his friends, including the three-year-old Count de La Marche, who was awarded 60,000 livres. When volunteers failed to be enticed to Louisiana, Law's private army of *bandouliers* rounded up criminals and prostitutes to be sent off in chains. A former governor of Louisiana, Antoine de la Mothe Cadillac, the founder of Detroit, was put in the Bastille when he tried to publicize the frightful conditions of life on the Mississippi at that time. For the colony was represented to be thriving, even though its capital, founded by Law's directive in the name of the regent and called La Nouvelle Orléans, was really a village of huts.

Shrewd men began getting out

Law's "System" now consisted of the Royal Bank, control over all aspects of finance and trade, including taxation, currency issue and, most important, the issue of securities in his enterprises. On top of this he agreed to take over state bonds worth 1.5 billion livres, which he proceeded to redeem for cash in the fall of 1719. This required more paper money to be printed. Shrewd men quietly began to get out of the market with enormous profits. The Duke of Bourbon, who later became prime minister, cleared millions.

Flattery made Law oblivious to the danger. The regent's witty mother, who was addicted to letter writing, reported: "Law is so run after that he has no rest day or night. A duchess kissed his hand before everyone, and if duchesses kiss his hands, what parts of him won't the other ladies salute?"

The winter of 1720 brought an end to the euphoria. The market began to show the effect of the canny men who had liquidated their shares and their paper money, converting them into gold, jewels, land. Some money was put away abroad. By February the value of Law's various shares, all of which had been is-

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sued at 500 livres, had dropped from close to 18,000 down to 10,000 and 8,000. Law grew desperate and irrational. To keep the market from plunging, he offered to buy shares at the pegged price of 9,000. When everyone rushed to cash in, he was obliged to employ 12 printing plants to supply another 1.5 million livres in paper money for this meaningless exchange. Then he made sure that paper would have no competition by banning the use of gold and silver coins for all but petty transactions. The chief authority on the regency, James Breck Perkins, has commented: "France, for a short time, enjoyed the distinction of being the one civilized country where a man could not pay his debts with gold or silver, a state of affairs which had no parallel since mankind passed from the era of barter and chose the precious metals as the medium of exchange."

Police could enter a home without a warrant and tear the place apart in search of coins, which were forbidden to be held in amounts greater than 500 livres per person. People hid their wealth and sometimes died without having revealed the hiding place.

Lord Stair, disgusted with his old friend Law, said: "I can't doubt Law's Catholicity since he has established the Inquisition after proving transsubstantiation by changing paper into specie."

In March, less than three months after his ascendance to Controller-General of Finance, John Law ordered the rue Quincampoix closed down as a social menace. "The rage to pile up money," he said in a petulant letter to the paper *Nouveau Mercure*, "came from the extraordinary growth of securities." That he alone had forced this growth on the nation seemed to have slipped his mind.

When it was announced in May that the value of paper currency was to be cut by 50 percent, "the uproar was general," wrote Saint-Simon, the memoirist. "Every rich man thought he was ruined beyond redemption, every poor man believed himself reduced to beggary." The regent had to step in, rescind the order and remove Law from office. For the next six months, as nominal head of the Royal Bank, John Law fought in vain to prevent the System's being dismantled. Some of the worst scenes occurred during the summer of 1720 as thousands were ruined.

Ordinary people grew desperate for meaningful money. It was decided to let them have a few coins for their almost worthless paper, and on hot nights they stood in line waiting for the bank to open. A young banker wrote: "If the bank no longer pays out silver, people will soon cut their throats for a few coins . . . and I am unable to pay my laundress, who only wants silver."

In July, rumors of a governmental crisis brought such crowds to the bank that 16 people suffocated. During the ensuing riots Law's empty carriage was spotted and reduced to kindling wood. It was only a matter of time before he would have to leave France. Voltaire remarked that paper money had returned to its intrinsic value. It ceased to be legal tender. In December, John Law and his son fled to Belgium, leaving his mistress and a daughter behind.

He lived for another eight years, during which he spent almost four years in England. He died in his favorite city, Venice, a few weeks before his 58th birthday. Everything he owned had been confiscated. It was widely believed he had placed money abroad, but in fact he had brought 1.5 million livres to France. All attempts to prove that he had done anything illegal failed, and his ledgers were a model of clarity.

But his name was blackened by people he had enriched, such as the Duke of Bourbon, and all the blame for the disastrous System that the regent and his friends had encouraged was placed on Law. He was the butt of satires by Montesquieu and anonymous poets and artists, whose work was gathered in a remarkable book put out in Holland called *The Great Mirror of Folly*.

Law's experiment made it impossible for the French to establish another national bank for half a century. His theories were reprinted during the French Revolution, which was brought to the boil by a financial crisis, and paper bills, called *assignats*, were issued. The government at the time overprinted them just as Law had, then repudiated them with far greater losses than during the Mississippi Bubble. The same kind of inflation occurred here immediately after the American Revolution and in Germany and Hungary after World War I. Today's controls pretty much rule out its happening here, but sometimes we wonder if John Law is watching us with a faint smile.

After Bubble burst, a cartoonist drew a fool tossing gold into Law's caldron as gambler (lower right) rues losses and smirking devil (left) mocks folly of it all.

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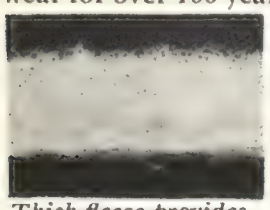

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Book reviews

Inner Companions
Colman McCarthy
(Acropolis $8.95)

For seven years Colman McCarthy has been a newspaper columnist for the *Washington Post*. Sandwiched between editorials and political commentary, he brings to those pages the special distinction of a man of profound spiritual awareness writing of matters of the heart and the mind. He writes irregularly—that is to say, when the subject and the spirit move him.

Two years ago he published a collection of his columns, *Disturbers of the Peace*. In the introduction to it, Robert Coles wrote that the essays are "a luminous and moving effort to show how particular individuals from several parts of this country have challenged all sorts of 'powers and principalities' thereby becoming Mr. McCarthy's 'disturbers of the peace.' "

This new book is a proper companion to that first volume. McCarthy's inner companions are, in many cases, also disturbers of the peace. They are public as well as private persons, all marked by "gentleness, integrity and joyfulness." They people his inner life, he tells us. They are his companions on journeys, not because he has actually met them but because he finds them worthy models for his life. He uses Martin Buber's sentence, "All real living is meeting," to describe the reality of these encounters, and then, because his writing about them is indeed "luminous," he manages to encourage us to think critically about our own lives.

Fifty-three persons are his subjects, each one finely delineated, each having led a dedicated life and done significant work, from St. Benedict and St. Teresa to Rabbi Abraham Heschel and Swami Bhaktivedanta Prabhupada, from William Penn to Carl Jung and Raïssa Maritain. Those I have listed come from the two sections about persons whose histories belong to "the spiritual life" and "the interior life." There is a third part devoted to writers, widely known ones like Brendan Behan and Sigrid Undset, and almost unknowns like the critic Michele Murray, who died of cancer at 40, at the start of a promising new career as a poet and novelist.

But the section which intrigued me most is concerned with "the committed life." In this company, for example, is Dorothy Day, a subject in McCarthy's first book and back again, older now but still living her extraordinary life of single-minded, devoted poverty and service to the poor, an austere and noble woman whose Christianity is "a confirmation that the works of mercy and solace still comprise the most esteemed of all vocations, and unless homage is paid to that truth, no other can make sense."

The Bancroft Library

John Muir: an inner companion

In this essay McCarthy emphasizes Dorothy Day's contribution to the art of committed journalism, her editorship for 42 years of the distinguished penny-sheet, the *Catholic Worker*, which looks exactly as it looked in 1933, costs the same, and maintains its same undeviating support for the poor, the jailed, the migrant, the

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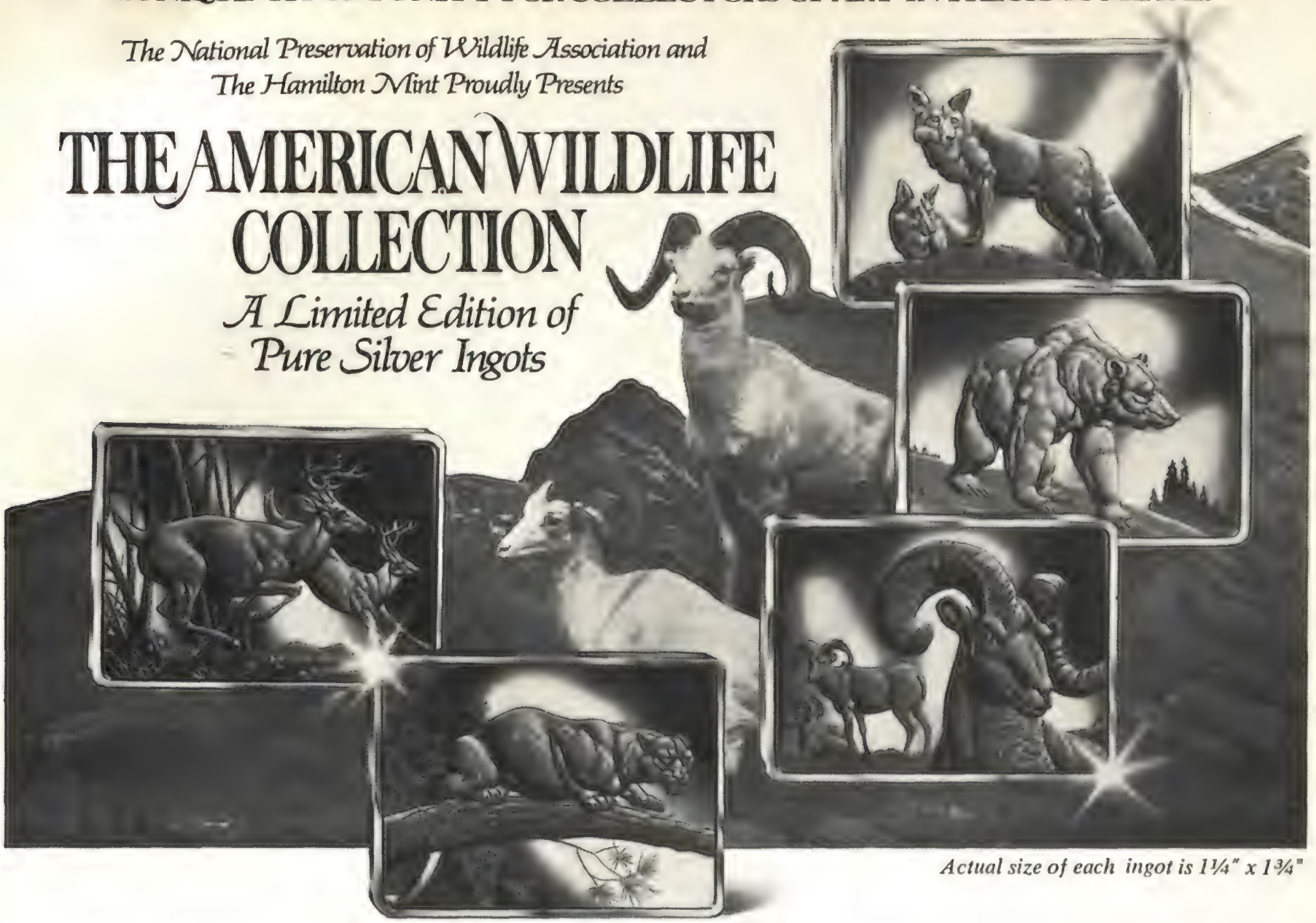

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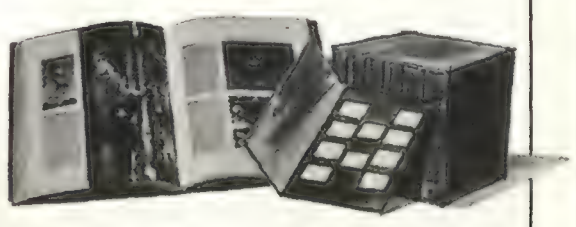

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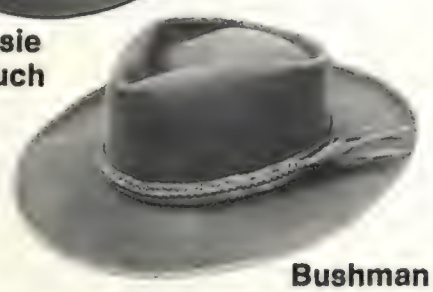

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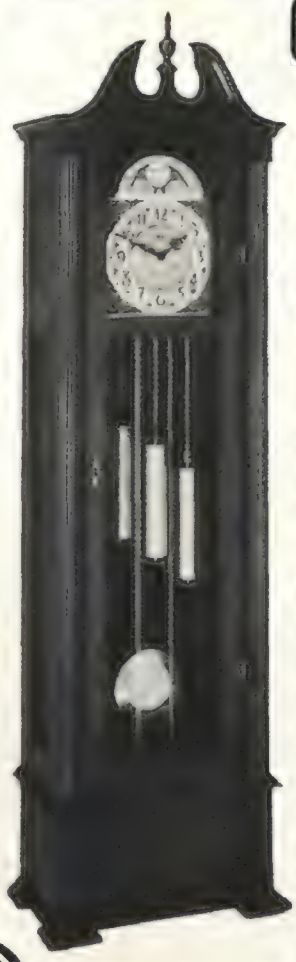

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old, the sick. In many ways McCarthy is engaged by the same concerns and love for humanity; Dorothy Day, A. J. Muste, Emma Goldman, John Muir and others are his natural inner companions.

But if this brief survey has led the reader to think of Colman McCarthy as a socially concerned writer alone, I would point to his introduction to "The Interior Life," which defines the true locus of his own life: "We live in our interior, not only when life in the exterior world continues to go haywire and forces us to retreat, but also when nothing within us makes much sense either. . . . One's interior life becomes a necessity as much as a luxury. It is the one place where we can discover that we are worth something, despite all the exterior pressures that say the opposite."

This is an unusual way for a newspaper columnist to write, and the tone of his spiritual journeys does not sound like the pieces one is accustomed to reading with one's morning coffee. In his simple, impressive descriptions of dedicated lives and eternal causes, the hysteria and fulminations of the daily press die away. As he writes about men and women, in all times, who have (here he is using Orwell's image of the voice of the belly) "won out against the fat man within," he is celebrating their victories and encouraging us to make an attempt at ours.

—Doris Grumbach
Editor and author

Antarctic Adventure: Scott's Northern Party
Raymond E. Priestley
(McClelland and Stewart Ltd., $20; distributed in the United States by The Stephen Greene Press)

A little-known chapter in Captain Robert Scott's last expedition to the Antarctic (Britain National Antarctic Expedition, 1910-1913) concerns the exploits of his Northern Party—a scientific team of explorers who were more fortunate than their leader in their incredible survival of a fearsome winter that they endured in a cave in the snow. A young geologist, Raymond E. Priestley, who later became President of the Royal Geographical Society, in a personal account of these events now reprinted for the first time since World War I, deals with that period of Antarctic exploration which is now justly

She will never forget the pain of poverty.

Patsy knows what it is to be poor—so poor she has to live in a slum on the outskirts of a big city in India.

She knows what it feels like to be hungry, to wear cast-off clothes, to sleep on the floor because there is no bed for her.

Patsy lives in a rented home that has only two rooms. She shares the two rooms with her parents and six brothers and sisters. There is no furniture.

Though he works hard, Patsy's father earns less than $250 a year, not nearly enough to provide for the family's needs. Her mother is illiterate and does not have a job. And a child like Patsy cannot change her drab, hopeless life—unless someone more fortunate will help.

But Patsy is one of the lucky ones who now has a chance to escape from this poverty. She has a kind sponsor here in this country who is helping her through the Christian Children's Fund.

Patsy attends a school affiliated with CCF. She gets her school uniforms and other clothes and her books, and at the school she is given breakfast, lunch and snacks.

For Patsy, going to school—getting an education—is the happiest part of her life. You see, in spite of all her troubles, little Patsy wants to be a teacher when she grows up. And if she succeeds, she can become a useful adult, able to help other youngsters learn to rely on themselves.

Through the Christian Children's Fund, you can be a part of this person-to-person way of sharing your love with needy children—deserving children like Patsy who want only a chance to make it on their own. They need your help or their lives may be stunted by poverty and neglect.

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Answers to some questions our sponsors ask.

If you are thinking about sponsoring a child through Christian Children's Fund, certain questions may occur to you. Perhaps you will find the answers here.

Q. What types of projects does CCF assist? **A.** Children's Homes, schools and Family Helper Projects, plus homes for the blind, homes for abandoned babies, day care nurseries, vocational training centers and other types of projects.

Q. What does my sponsorship actually do for the child? **A.** Each child is helped according to his own needs. For example, if your sponsored child lives in a children's Home, you will help supply food, clothing and medical care. If the child is enrolled in one of our Family Helper Projects, your sponsorship will help provide school supplies, clothing, medical assistance and food, plus family guidance from a trained child care worker. You'll receive detailed information on the project where your sponsored child receives assistance.

Q. Why does CCF use a sponsorship plan to help children? **A.** To help provide long term child care along with a person-to-person relationship between sponsor and child. In this way the sponsor and child can relate to each other as individual human beings.

Q. When and where was CCF started? **A.** CCF began in 1938 by assisting children in China. It now helps thousands of children in many countries around the world.

Q. Is CCF independent? **A.** Yes. CCF works closely with welfare agencies, foreign governments and missionaries. It helps youngsters regardless of race or creed.

Q. May groups sponsor a child? **A.** Yes, church classes, office workers, civic clubs, schools and many other groups sponsor children.

Q. May I send an extra gift? **A.** Yes. If you wish to send a small money gift for Christmas or a birthday, we will forward the entire amount along with your instructions. You will receive a "thank you" letter from the child.

Q. What happens if the child I sponsor leaves the Home or Project? **A.** We will tell you why the child is no longer receiving CCF assistance. You'll receive information about another child who will be placed with you for sponsorship. Almost every project has a waiting list of children who need assistance, and as soon as one child leaves, another is accepted.

Q. May I choose the child I wish to help? **A.** You may indicate your preference of boy or girl and country. We will try to fulfill your request, but many sponsors allow us to select a child from an area that needs help most urgently.

Q. May I write to my sponsored child? **A.** Yes. And after you write, you will receive the child's original answer along with an English translation. If your sponsored child is unable to write, he will be assisted by project workers or family members.

Q. May I visit the child I sponsor? **A.** Yes, our Homes and Projects are pleased to have sponsors visit them.

Q. How can I be sure the child is actually receiving the benefits of my monthly assistance? **A.** CCF keeps close check on the children and the projects through field offices, supervisors and caseworkers. All projects are inspected regularly by our staff. Financial and program inspections are frequent, ongoing activities.

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referred to by all as the "Heroic Era."

Priestley and his five companions, equipped with light clothes and minimum rations, on a summer sledging expedition away from the base camp, found themselves marooned for the entire Antarctic winter on Inexpressible Island when their relief ship failed to return. With only lightweight tents to shelter them, they dug themselves an igloo in a snow drift and survived the long winter on near starvation rations of seal and penguin meat and a ship's biscuit a day.

Still hoping for the relief ship as winter approached, the explorers were reluctant to butcher a sufficient number of seals to carry them through the seven long dark months of winter until it was too late and most of the seals had departed. The part of the book that follows describes their freezing entombment in the ice cave blackened by the soot from the burning blubber used for both cooking and lighting.

Their ordeal was marked by some "red-letter" days such as one when they succeeded in killing a seal that contained "thirty-six fish which were not too far digested to be still edible." Wrapped up in their sleeping bags like "huge and hairy caterpillars," they told stories, read to each other, sang songs and in their hours of sleep dreamed only of food.

They kept their sense of humor and boosted their morale by looking forward for days in advance to an extra biscuit to celebrate a birthday or the occasional treat of a lump of sugar. The experience showed us all, said the author, how little is required to be content and in how many cases the luxuries of civilization only fulfill the wants they create. To repeat such an experience, he reflects, would "kill most of us or drive us mad, but it is certain that our pleasures during the hardest winter any of us are likely to see were as acute as our pains."

At the end of the winter they stumbled from their "hole in the snow" weakened and unwashed for nine months, their clothes in rags and coated with soot and blubber grease. They then dragged their sledges on a nine-week march across the ice to their base on Ross Island, arriving in December 1912 to learn of the death of Captain Scott and the Polar Party.

Less than two years earlier, just after the arrival of Scott's expedition, the author describes his meeting with the Polar Party led by the Norwegian explorer

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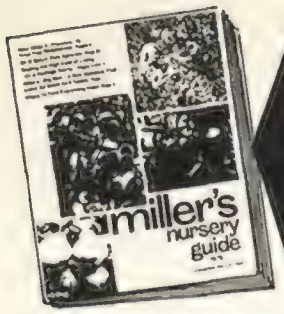

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Conditions for visitors to the Antarctic have changed since then, and now the McMurdo base comfortably accommodates a thousand American scientists and military personnel and entertains them with movies and closed-circuit TV.

The modern polar man may well shudder at some of the experiences of the first explorations, remarks Sir Vivian Fuchs in a new forward to *Antarctic Adventure.* "Yet the environment is the same, ruthless and unyielding" calling forth "the same capabilities and human responses."

This is a landmark document in Man's history of polar exploration.

—Richard Beeston
Washington correspondent,
London *Daily Telegraph.*

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The takeover of China by the Communists in 1949 was viewed by some Americans as the result of plots and conspiracies and betrayals. But in fact the Communist victory was the consequence of more than a century of political, economic, social, military and national disintegration in China. In other words, Mao Tse-tung and his followers were able to fill a vacuum that had been created by decades of war, civil strife, natural calamities and the ineptitude of successive

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Chinese governments. Thus the rise of the Communists cannot be understood without an appreciation of modern Chinese history. These volumes are a valuable introduction to that history.

Wakeman is on the right track at the outset of his book in stressing that Imperial China was, in many ways, a victim of its own peculiar success. Between the 15th and early 19th centuries, he points out, Chinese agriculture was so dynamic that, largely because of the increase in food supply, the population tripled within a period of 400 years. And this phenomenon, among others, imposed pressures that the country and its administration could not handle. Old elites gave way to new classes and traditional accommodation changed to conflict. Such upheavals as the Taiping Rebellion in the 1850s were symptomatic of this transformation, which eroded the empire and cleared the path for revolution.

The dissolution of the empire made China vulnerable to Western intrusion, and this had a dual impact. On the one hand, it aroused Chinese nationalism. At the same time it prompted many educated Chinese to study Western ideas in the belief that China could strengthen itself through modernization.

The first successful nationalist, Sun Yat-sen, who founded the Chinese Republic in 1911, sought to adapt China to Western ways, as did his successor, Chiang Kai-shek. But the Western doctrine that would really take hold in China was Marxism—or at least Mao's unique version of it. Mao succeeded where Chiang failed because he mobilized the peasants, who represent the overwhelming mass of the Chinese population, and in that process he developed a new kind of Marxist ideology that was suited, in his words, to the "concrete conditions" of China.

Sheridan's account of the 37 years between the establishment of the Republic and the Communist triumph is the logical companion to Wakeman's work, for it traces in lucid style Chiang Kai-shek's futile efforts to unify China under his own control. Chiang made little headway, as Sheridan elaborates, for a number of reasons. His regime was primarily implanted in urban areas, and therefore did not reach out to numbers of Chinese. It also became corrupt and ineffective, and alienated rather than attracted the populace. And it was unable to cope with the Japanese invaders, whose devastation

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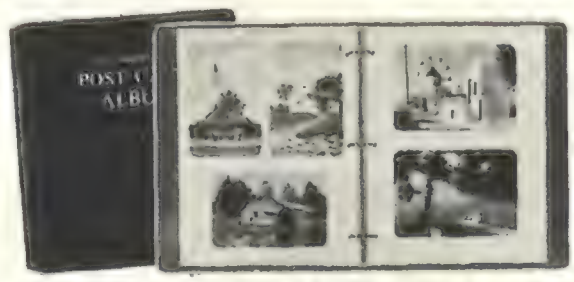

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of China before and during World War II was an invitation to the Communists to extend their influence. They were able to do so because, in their struggle against the Japanese, they acquired the legitimacy and moral authority that Chiang had managed to muster only among a handful of disciples in the cities and among sympathizers in the United States. Although China has yet to achieve political stability, its era of disintegration must be considered as finished, and in the final analysis that may go down as Mao's greatest achievement.

Brackman's biography of Pu Yi, the last Ching emperor (who would live out his life as a ward of the Communists), is a fine descriptive book that should serve as frosting on the cake of modern Chinese history. The story of contemporary China is filled with dozens of equally colorful characters, and Brackman has made a useful contribution to the mosaic.

—*Stanley Karnow*

Syndicated columnist, author of *Mao and China: From Revolution to Revolution*

Jacopo Sansovino
Architecture and Patronage in Renaissance Venice
Deborah Howard
(Yale University Press, $18.50)
Andrea Palladio
Lionello Puppi
(New York Graphic Society, $47.50)

Jacopo Sansovino and Andrea Palladio had major roles in giving 16th-century Venice the face that today's visitors still see. Deborah Howard and Lionello Puppi approach the careers of these two Italian Renaissance architects from different points of view—the Howard book is essentially a book about a process, the Puppi book about a product. Each of these scholarly studies is excellent in its own way, and each sheds revealing light not only on the past but on today's architecture—process and product.

Sansovino arrived in Venice in 1527. He was 41 years old, a mature artist (he had made his reputation primarily as a sculptor, not an architect). In spite of his limited architectural experience, he was given the job of restoring the domes of the Basilica of St. Mark. This set him on a new career; two years later he was named "*proto*," or architect and superintendent of buildings to the *Procuratia*

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de Supra, one of the three branches of the Procurators of St. Mark.

In 43 years in Venice, Sansovino worked with every type of client the city had to offer: the Procurators, under whom he essentially redesigned the Piazza San Marco; the Venetian state itself, for which he designed the Mint (also on the Piazza) and another building in the Rialto market; monastic orders and parish groups, for whom he designed five churches, plus the hospital of the Incurabili, for which he designed another church; charitable institutions; and private clients. Howard details the trials, tribulations and triumphs of these varied architect-client relationships, and in so doing she makes it quite clear that the economic, social, legal and emotional factors that affect today's architecture have been with us as long as there have been architects and clients.

While Sansovino was building public buildings in Venice, Andrea Palladio was busy designing town and country houses for wealthy patrons in and around Vicenza. These palazzos were his greatest work. In Venice he designed the church of San Giorgio Maggiore, among other projects, and became the only architect who could challenge Sansovino's supremacy. When Sansovino died in 1570, Palladio succeeded him as architectural adviser to the Venetian Republic. Palladio also built a reputation as a major architectural theorist, marked by the publication in 1570 of *I Quattro Libri dell'Architettura* (The Four Books of Architecture) which were an influence for centuries.

It is the product of this career—the palazzos, the public buildings, the churches, and the other architectural works—that Lionello Puppi, Director of the School of History and Art at Padua University, has documented. Large it is: 465 pages, 629 black-and-white photographs, plans and drawings in a handsome five-pound package. It is scholarly and thorough—Palladio's cultural background and life are covered well in a relatively short text (a blessing, as it is heavy reading), and there is a large section of well-displayed photographs and a fully annotated catalog of his works. If the Howard book helps us understand the process of architecture, the illustrations in this elegant book can give us some ideas about looking at the product of that process.

—*Clint Page*
Washington-based architectural writer

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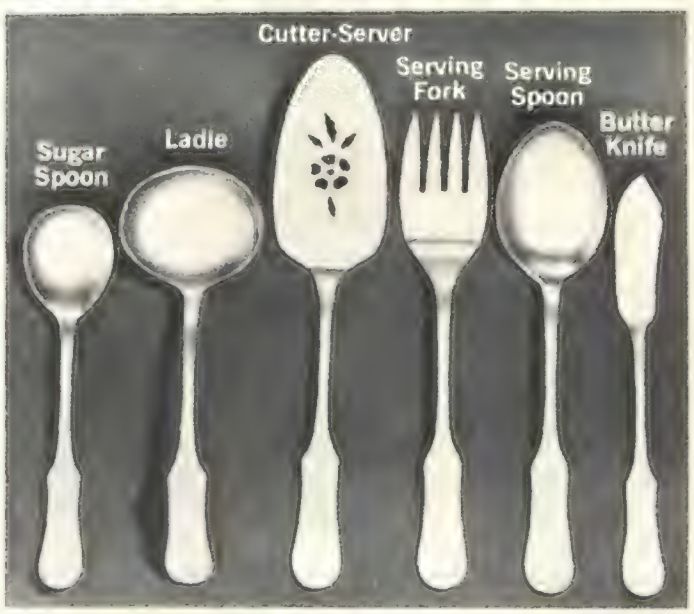

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The Trumpeter Swan by Winston E. Banko, Bureau of Sport Fisheries and Wildlife, U.S. Department of the Interior, 1960

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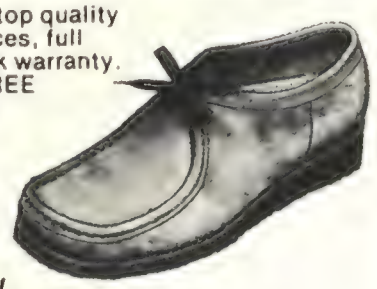

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Waterfowl Tomorrow by the U.S. Department of the Interior, Bureau of Sport Fisheries and Wildlife, 1964

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Peggy Bacon (p. 58)

Peggy Bacon: Personalities and Places by Roberta Tarbell, published for the National Collection of Fine Arts by the Smithsonian Institution Press, 1975 (catalog of the exhibition)

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Baja California (p. 76)

The Log from the Sea of Cortez by John Steinbeck, The Viking Press, 1951

The Baja Book by Tom Miller and Elmar Baxter, Baja Trail Publications, 1974

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Elie Nadelman (p. 84)

The Sculpture and Drawings of Elie Nadelman by the Whitney Museum of American Art, 1975 (catalog of the exhibition)

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John Law (p. 92)

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John Law by Montgomery Hyde, W. H. Allen (London), 1969

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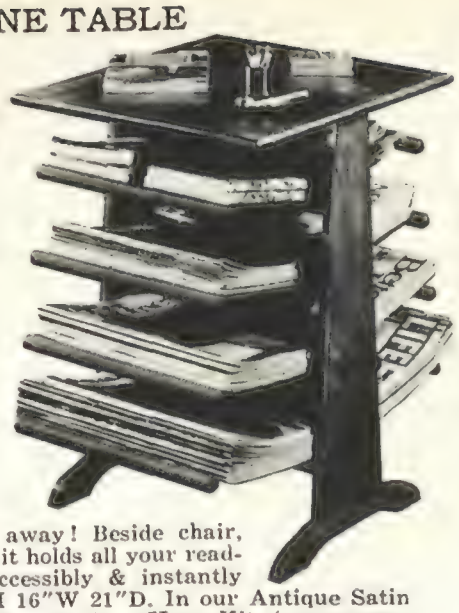

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Hirshhorn Museum and Sculpture Garden

"The Sculpture and Drawings of Elie Nadelman" is a recently opened show (see p. 84) in the lower-level special exhibits gallery. Included are 102 bronze, wood and marble sculptures and 40 drawings—through February 15.

National Collection of Fine Arts

"Emanuel Leutze, 1816-1868: Freedom is the Only King" is the first major show of this artist's work in the United States. Most of the works, from private and public collections, have never been seen in this country. Approximately 33 oils, including a self-portrait, and ten drawings make up the exhibit. Many of Leutze's works, such as *Washington Crossing the Delaware,* reflect themes of heroism and freedom. A man of strong political convictions, the artist divided his lifetime between his native Germany and the United States—opens January 16.

"Peggy Bacon: Personalities and Places" continues through February 8 (see p. 58). The artist is widely known for her caricatures of people in the arts and the political world in the Thirties and Forties. Included in the show are her witty and revealing portrayals of Dorothy Parker, FDR, Gertrude Stein, Georgia O'Keeffe, Salvador Dali and others.

National Portrait Gallery

"Artists and Models" is a continuing exhibition of photographs and documents from the collections of the Archives of American Art. It concentrates on the 19th and 20th centuries, "the heyday of professional modeling in America." The exhibition explores through paintings, photographs and manuscripts the relationship of the model to artist, and the changing role of the model through history. Diaries and recollections reveal the intimate and often humorous details involved in the art of "sitting." The exhibition includes artists from Rembrandt Peale to David Smith.

A major Bicentennial exhibition based on Daniel J. Boorstin's Pulitzer Prize-winning book *The Americans: The Democratic Experience* presents the forward-thinking men and women who, through their inventions and innovations, revolutionized America in the decades following the Civil War. Their portraits, together with patent models, catalogs, diaries, ledgers, maps, newspapers, games and instruments, visualize the "persistent democratizing of American life."

Museum of Natural History

"Kenyans: Paintings by Lunda Hoyle Gill" depicts the varied dress and distinctive ornamentation worn by the rural Kenyans. The paintings reflect the diverse origins and considerable racial complexity of the people. The works are displayed in the second-floor rotunda gallery—opens January 5.

"Our Changing Land" is a new, permanent exhibit hall on the ground floor of the museum. The extensive exhibit shows how environmental change during the past 10,000 years has been reflected in a small area on the banks of the Potomac River. Full-sized habitat settings demonstrate how the processes of change have worked from the time before Man evolved on Earth to the present. The settings of

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A Weekend at the National Collection of Fine Arts—January 23-25: A comprehensive look at American painting, sculpture and graphic arts in the United States from earliest times to the present • **Baja Whale Watch**—February 13-20: Gray whales, sea lions and birds from San Diego to San Benito Island, San Ignacio Lagoon, Cedros and San Martin Islands on a chartered sportfishing boat • **Yellowstone in the Snow**—February 27-March 5: A survey of the wildlife and geography by snowmobile coach; accommodations at Old Faithful Snow Lodge • **Weekend at the Hirshhorn**—March 5-7: A comprehensive study of contemporary painting and sculpture • **Savannah and Charleston**—March 14-21: The history, culture and architecture of these two lovely Southern cities • **All About Gems Weekend**—March 19-21: Dinner in the Hall of Gems; meeting with curators and staff; behind-the-scene tour of mineral and gem collections • **Death Valley, A Camping Experience**—April 3-11: Explore the surrounding mountain ranges and Death Valley Monument; learn about the geology and mining history of the area • Coming in July, a **Colorado Float Trip** and an **Alaskan Adventure** • **Washington "Anytime" Weekend**—Choose any weekend to visit the nation's capital and enjoy a special tour of the original Smithsonian building, two nights at the elegant Loew's L'Enfant Plaza Hotel, close by, and a chance to see other sights in Washington by Tourmobile (reservations required ten days prior to weekend) • Write Smithsonian Associates Travel Program, A & I 1270B, Smithsonian Institution, Washington, D.C. 20560 for reservations or call (202) 381-5910 for information.

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animals, trees, buildings, background murals and figurines are complemented by films and slides.

Museum of History and Technology
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Freer Gallery of Art
"Arts of Asia" is a Bicentennial exhibition presenting Near and Far Eastern art from the period of the American Revolution. The variety of materials reflects a time when China was dominated by the reigns of three major emperors, Japan was ruled by the Tokugawa shogunate, and the Near East was under the nominal control of the Ottoman sultans. The art works from these cultures form an important contrast to expressions in the New World and offer American visitors today an opportunity to consider a history quite different from their own.

Winter Museum Hours
The Arts and Industries Building, former home of the *Spirit of St. Louis,* the "moon rock" and the Apollo 11 command module, is closed for Bicentennial renovation. Other Smithsonian buildings are open daily from 10 A.M. to 5:30 P.M. The National Zoo is open from 9 A.M. to 4:30 P.M. daily.

Parking for Visitors
A garage under the new Air and Space Museum is now open to the public, providing parking spaces within easy walking distance of most Mall museums. Fees are structured to discourage commuter parking. The entrance is on 7th Street, between Independence Avenue and Jefferson Drive S.W.

Smithsonian Commons
The Commons is now open on weekends for Associates and their families, offering a buffet luncheon for $3.25, with a reduced rate for children. Beverages and desserts are optional. Hours are 11:15 A.M. to 2:15 P.M. seven days a week.

Traveling Exhibition Service

More than 600 organizations in all corners of the United States show exhibitions sponsored by the Smithsonian Institution Traveling Exhibition Service. The subjects reflect the diversity of the Institution. For information, contact: Smithsonian Institution Traveling Exhibition Service, Washington, D.C. 20560.

- Brownfield, Texas—"The Inaugural Story" (pictorial history of inaugurations from George Washington to Gerald Ford), Terry County Heritage Museum, January 1-February 8.
- Chestertown, Maryland—"Folk Baroque in Mexico" (photographic exhibition of baroque architecture), Washington College, January 3-February 1.
- Cleveland, Ohio—"Photographing the Frontier" (anonymous photographs from the late 19th and early 20th centuries, portraying scenes from everyday life), Case-Western Reserve University, January 3-February 1.
- Detroit, Michigan—"White House China" (first families' personal as well as official china, see p. 143, December SMITHSONIAN), Detroit Historical Museum, January 24-February 29.
- Honolulu, Hawaii—"Population" (depicts contemporary trends in population growth in the United States), Bernice Bishop Museum, January 10-February 8.
- Memphis, Tennessee—"Coast to Coast Coasters" (everything you've ever wanted to know about roller coasters, from the earliest prototype in 17th-century Russia to their contemporary revival), First National Bank of Memphis, January 10-February 8.
- Washington, D.C.—"Graphics by Rolf Nesch" (works by this widely known Norwegian artist), The Library of Congress, January 10-February 18.

Divisions of Performing Arts and Musical Instruments

- The Jazz Connoisseur series presents "The Heath Brothers," a distinguished family of jazzmen—January 11, 6 P.M., Hirshhorn Auditorium.
- "The Prague Madrigal Singers," a widely known ensemble from the National Museum of Prague, perform in the People and Their Culture Series—January 16, 8 P.M., Baird Auditorium, Museum of Natural History.

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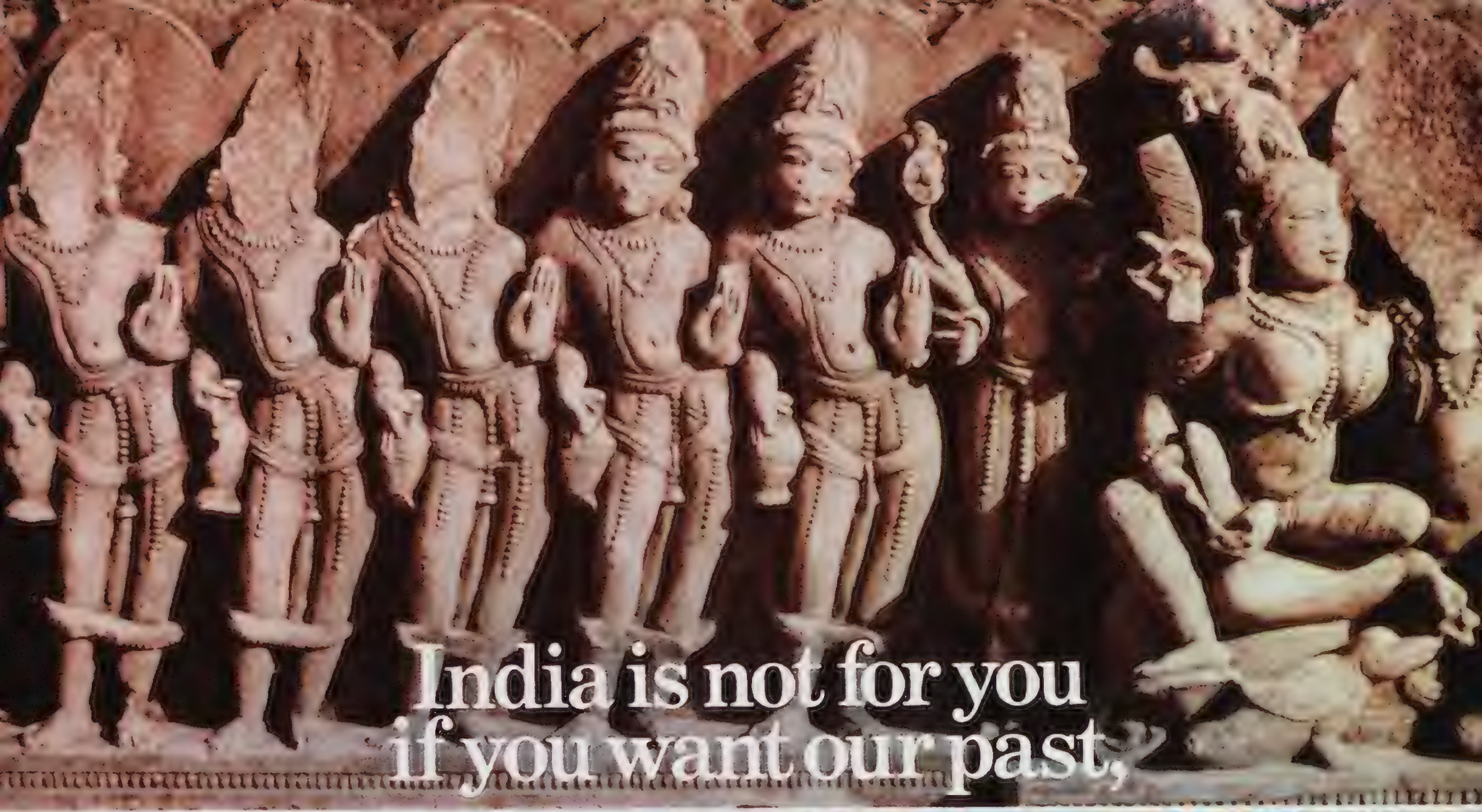

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'75 South Asia Tourism Year

By S. Dillon Ripley

The state of the Smithsonian: a report by the Secretary

All growth used to be called good, but today we must make our growth selective

It is appropriate these days to attempt to guess what amount of growth is prudent in an organization such as the Smithsonian. In the United States, growth and development have been synonymous with "good" for lo, these many years. "Growth" stocks, corporate "growth," "growth" industry—all have been phrases on the side of the angels. And indeed growth is natural, a symbol of animate being. "Growth is the only evidence of life," as Cardinal Newman learned from the Rev. Thomas Scott more than a century ago.

If, then, growth of some sort is natural, a condition of being, how can it be measured? At what level is it healthy, as in arithmetic growth? At what stage does it become out of control, raging and cancerous, as in exponential growth?

With our new environmentally conscious frame of mind, people the world over have been made aware on the one hand of the finite quantity of certain natural resources such as oil or minerals, and on the other of the worldwide problem of human population growth. The book *Limits to Growth,* produced by the Club of Rome, presaged a leveling off and decline of standards of living based on development, growth and concomitant expectations within a hundred years, accompanied along the way by a series of small depressions as various raw materials became nonexistent or economically unexploitable. Given these prospects, no matter how much debate centers around the details or the time schedule, the planners of the world, taking stock of the wars and oil embargoes in the Middle East, have grown increasingly uncertain of the future, and hesitate nowadays to subscribe to any prognoses predating October 1973.

In this variable climate, it seems appropriate to take stock and measure our own Smithsonian growth over the last decade. In approximate terms, our annual federal budget for salaries and expenses (nearly 80 percent of our total federal budget is for operations) has increased from a bit over $17 million in the fiscal year 1965, to nearly $71 million in fiscal year 1975. At first glance this seems a striking proportional increase, especially in comparison with that of the previous ten years.

S. Dillon Ripley directs the Institution from his castle office, once living quarters for the first Secretary, Joseph Henry.

However, roughly $23.5 million of the $53.5 million net increase in the period, or about 44 percent of the total increase, is for unavoidable costs. For example, nearly $20 million of this figure is for changes in the payroll, such as legislated pay increases, applying both to staff already employed in fiscal year 1965 and for additional employees subsequently authorized by the Congress. (Even if applied just to fiscal year 1965 employment alone, the cumulative effect of these pay increases would have raised our operating costs by more than $15 million; since fiscal year 1965, raises alone have increased the pay of salaried employees nearly 70 percent and wage employees an estimated 83 percent.) During this same period, inflationary increases for items such as utilities, supplies, travel, etc., have further increased costs to the Institution by $3 to $4 million. Thus, well over 40 percent of the "growth" of the Smithsonian in the past ten years has been due simply to rises in the cost of living.

If this is so, then what of the roughly $30 million that makes up the rest of our

Photographs by Alfred Eisenstaedt

After 100 years, third floor of National Portrait Gallery is again open to the public. The Victorian hall housed models when building was U.S. Patent Office.

total increase of $53.5 million? Of this real increase, nearly $4 million has been for major national events in celebration of the American Revolution Bicentennial, a program which is temporary in nature and will phase out gradually over the next two years. The other $26 million was authorized for the establishment of new activities and for the growth of existing bureaus and offices, including new staff, in the last ten years, but exclusive of their legislated pay increases. Of this $26 million, more than $6 million has been for *new* activities such as the Hirshhorn Museum and Sculpture Garden, the Anacostia Neighborhood Museum, the National Museum Act, the Office of Computer Services, and some 15 other new bureaus and offices.

The remaining $20 million has gone to strengthening existing activities and programs in order to keep up with appropriate standards for the museums and laboratories in our care. A highly visible and representative illustration is the Air and Space Museum, which has experienced large increases in staffing and funding as it has prepared for operations in its new building authorized by Congress. Less conspicuous has been a concerted effort to make our vast natural history collections more accessible for research by the application of computer technology and the development of a more adequate level of technician support.

It is perhaps worthwhile to cast a glance at the directions which our new activities have taken. In the museum field new activities cover a broad range. For example, the Institution has added an entire new museum, the Hirshhorn, which fills a recognized gap in the Smithsonian's offerings by providing superior facilities for the exhibition of modern art (a need which had been identified, though never acted upon, as far back as 1938). Thus, by acquiring the Hirshhorn collection and a museum to house it, the Institution took one giant step forward in growth of a tangible intellectual sort, by adding a new dimension of esthetic appreciation to the nation's capital. Already, in its first nine months, the Hirshhorn has lived up to its promise by receiving 1,620,540 visitors, making it one of our most popular museums in Washington.

The Cooper-Hewitt Museum of Decorative Arts and Design in New York, a most

significant and growing department, has been added to our art-related collections. The Anacostia Neighborhood Museum, a new experiment in community relations and in the fostering of technical museum training and art appreciation in a largely black community, has been extremely successful, and it now has nearly a half-million dollars of annual federal operating funds. The Archives of American Art is a new responsibility for the Institution in art curatorship, bringing to the Smithsonian a comprehensive documentation of the papers and life histories of American artists. Finally, the Smithsonian's Traveling Exhibition Service now receives federal support, enabling it to present, in 1975, 438 exhibitions in 45 states which were seen by approximately four million visitors.

In the realm of the sciences, environmental study receives support through the newly created Chesapeake Bay Center, as well as through the Environmental Sciences Program, which together with the Research Awards Program represent annual expenses of more than $1 million. The social sciences are represented for the first time, in the field of social anthropology, through the Center for the Study of Man. (Historical research in the Museum of History and Technology, can, of course, be described as humanistic study and is therefore part of the social sciences.)

International programs, public information and orientation services, and equal opportunity and other important administrative services, make up the rest. Thus, of our $6 million for new activities, 36 percent has gone to the arts, 20 percent to the sciences and about 33 percent to administering various services. The remainder, nearly 11 percent, is accounted for by the technical training grants program of the National Museum Act.

I have been speaking of our federal budget, the Congressionally appropriated funds that support our public exhibition services, including staffing, building and maintenance. But the Smithsonian is not just another government agency; it is a quasi-public institution which also depends on endowment, gifts and private sources of income to support research and other efforts that carry out our mandate for the "increase & diffusion of knowledge."

Michael Collins, director, and Secretary Ripley study an exhibition area in the new Air and Space Museum, to open July 4, 1976. Planes are DC-3 and Boeing 247.

These private funds of the Institution have also grown substantially during this ten-year period, from a budget of $12.1 million in fiscal year 1965 to $35.9 million in 1975. As with our federal appropriations, however, inflation of approximately 70 percent in the past ten years has cut heavily into the purchasing power of the 1975 dollars, and again our real growth here has been far less than it would seem.

But even as diminished by inflation, this growth does reflect the greater flexibility of private funds to begin new activities as opportunities arise—specifically, it has allowed the expansion of the Institution's education "outreach" program through the National Associates, spreading the values of our knowledge, research, exhibits and collections to citizens throughout the nation. It has also allowed improvements in services to area residents and to visitors to the nation's capital. Included in these improvements are a first experiment in a neighborhood museum (Anacostia), an enormously successful annual Festival of American Folklife on the Mall, as well as fully financed activities in oceanography and the acquisition of major collections.

In all of this we feel that our growth has been a logical outcome of the expressed needs of the Institution for further appropriate support, and for the addition of new activities to supplement and buttress what we are already trying to do. Fortunately, as the critic Hilton Kramer has pointed out in the *New York Times* (May 25, 1975), where we have added museum collections of real magnitude or differing theme, we have been able to house them in separate quarters rather than in one ever-ballooning single building. In my own opinion, the days of combining under a single roof the entire spectrum of the world's art, from preclassical times to the present, are over. Only practiced museum-goers have acquired, through experience, the rigorous self-discipline needed to focus on a single exhibit or cultural era during a visit, presumably one of many, to an all-embracing municipal art museum. The average museum-goer has no such opportunity. For him, the phantasmagoria spread before his eyes during a single visit can be akin to twisting the dial too rapidly on a TV set, so that museum fatigue is assured.

Sweeping view of "Lincoln Gallery" in the National Collection of Fine Arts indicates range of museum's holdings. Isamu Noguchi's marble Grey Sun *(1967)*

But if we attempt to make the Institution's growth selective, how do we select? In the last two years the Smithsonian has embarked on a series of priorities studies, using our administrative resources to marshal bureau directors, our distinguished Smithsonian Council, our National Associates Board and our Development Office to focus on where our real needs remain.

It is quite clear from all these discussions that the future growth of the Institution should consist of two parallel and distinct types of activity. Physically, as far as existing needs are concerned, we have reached a sort of plateau. But we do need desperately a consolidated museum support facility to house, curate and conserve collections in an off-campus setting, away from the Mall. The public exhibition facilities on the Mall should not be further cramped by the pressures of storage and curatorship.

We already possess the land and some of the facilities at Suitland, Maryland, to expand appropriately and to create a new way of looking at collections, working with them, and training conservators as a prototype for a national conservation school. We curate and store hundreds of thousands of man-made objects, just as the Library of Congress and the National Archives cu-

is at extreme left, a 19th- century statue of Washington at the far end.

Lincoln's second inaugural ball was held in this noble room in 1864.

rate and store millions of documents, records, manuscripts and books. Only recently has it been realized that the legacy of man-made objects is just as valuable historically and philosophically as the testament of the written word. Present efforts to conserve these objects are still in their infancy, carried on spottily throughout museums and historical collections all over the country by about 200 trained persons. The training of conservationists and the study of conservation techniques are of the highest priority. Unless the Smithsonian can develop a support facility outside the District of Columbia, but still available for curation and training, we shall be shirking our national responsibility, laid down in our original charter of 1846, to be the "keeper of the national collections."

Additionally, of course, we must renovate, repair and refurbish our old buildings and their surroundings. Keeping abreast of decay and overuse is a fearsome task, one which never ceases. It is not so much a task associated with growth as it is of physical, esthetic and intellectual maintenance. To preserve is also to improve. Our surroundings directly affect their own maintenance. It is easy enough to note that run-down lawns or neglected bushes and flower beds have just as direct an effect on increasing untidyness and litter as do shabby interiors, torn rugs or broken furniture.

And so the tasks of conservation, curation and storage go hand in hand with the tasks of keeping up, of refurbishing and of redoing our exhibits, whether in the National Zoo, the museums or our laboratory facilities. The final important task involved in taking care of what we already have is deciding how to use these objects. With the increase in collected objects comes an increasing responsibility for growth in depth. Understanding what it is that we possess, where it is and how to retrieve the concerned data becomes a new priority. Like libraries, museums suffer from bigness. Often one department does not know what the other has, or even where to look for something. Museum cataloguing and retrieval of information are still miles behind present library techniques.

Here is an area where the Smithsonian has an opportunity to provide national and international leadership. We still have no mechanism to equate our cataloguing information with that of our registrar, who is concerned only with logging objects in or logging them out. We have no compatibility among systems, no agreed-upon vocabulary, no way of meshing objects data with library data, even though we know the basic principles for carrying out these procedures. Thus the work of finding out how to use and how to exchange information about our objects is in its prehistoric stages. And yet, as we are the caretakers of a finite set of things for posterity, we must provide the memory bank to let our successors know that we were aware we had them and, as well, what we thought about them.

The other parallel and distinct type of activity of an institution such as ours is indeed growth. "Aha," the reader will say, "truth will out. We always suspected!"

It is true that museums as such *are* concerned with growth. I often think that today's museums are the only legitimate growth industry left. It is the nature of a museum to acquire objects, although today the acquisition process has become highly refined. As I noted earlier, the Club of Rome's *Limits to Growth* intimated that certain of the world's natural resources—oil and copper, for example—are finite in

Director Abram Lerner in the Hirshhorn Museum, which had more than 1.6 million visitors during its first year.

Lloyd Herman, Renwick Gallery administrator, surrounded by works from "Craft Multiples," which will tour U.S. cities.

quantity and may run out. In the same way, museum keepers know that the supply of objects, whether man-made or great natural objects such as whales or pandas, is also finite. So endangered man-made objects must be preserved and collected with the same zeal and care that endangered living species, end-products of the miracles of evolution, should be preserved alive in some manner for the future. How curious that a museum or zoo ends up being both a growth industry and an instrument of conservation! And what a paradox to find a growth industry which is not at the same time a *consumer* of resources! For better or worse, the Smithsonian is constantly involved in refusing potential gifts. Such gifts may range from vast buildings to smaller things. Thus we recently turned down the San Francisco Mint, the St. Louis Post Office and the liner S.S. *United States*. Additionally, we have politely rejected the largest collection ever offered to any museum in the United States of ceramics from Thailand (because we could not prove they were legally imported).

But of course the Smithsonian accepts things, especially when they in some way interdigitate with other things we already have, or fill gaps in certain collections. For example, the Institution possesses a good deal of basic railroading material and documentation of the history of railroad evolution in the United States, but we lack a "donkey," a particular small shunting engine of a type long since discontinued and now found, if at all, only in the Southern states where they were used as a power take-off for logging operations or lumber mills set up in pine forests. But how to find one? Where in some neglected forest glade lies moldering that abandoned hulk?

Another area in which our collections have great strength is in the history of porcelain making in Europe. Oriental hard-paste porcelains were widely admired in the West, but it was not until the early 18th century that hard-paste porcelain was first successfully produced in Europe at the Meissen factory of Augustus the Strong, Elector of Saxony. Through the benefactions of a few donors, notably Dr. Hans Syz, our Museum of History and Technology possesses an important collection of European hard-paste porcelains as well as a fascinating exhibit of many Oriental prototypes in design and pattern.

In the also significant soft-paste porcelains, especially from French factories of the late 17th and early 18th centuries, such as Rouen, St. Cloud, Mennecy, Chantilly and Sèvres, we are woefully deficient. To demonstrate the developments in ceramic history and technology in Europe and the United States, gaps such as this must be filled. And so, collectors, know that the Smithsonian would indeed welcome gifts not only of French soft-paste porcelain, but of many other types of European and American ceramics dating from about 1700 to the present. For this is only prudence on our part. If we are to preserve such objects, they must be *en suite* to make the collection comprehensive and historically more worthwhile for study. To this pursuit there should be no impediment.

But the question of collecting is fraught with complications. As I have pointed out, objects are finite in number, like rare natural resources. They may be fought over by rival directors or keepers with Machiavellian wiles and ferocious zeal. Or, again, they may be already in the possession of one institution or another and unavailable for further acquisition. This is all right if the objects are well displayed, documented and conserved. It is also all right if they are available for outside study or loan. Here the Metropolitan Museum in New York has recently been pioneering most farsightedly in the exchange of collections, so that objects of great rarity, not otherwise available, may be lent temporarily to others.

In such cases of greater need or higher priority, the broad vision of a director or a group of trustees may well exceed that of a particular curator. Some curators are objective about their collections and fully comprehend the needs of museums in general as well as the possibilities of education for the public, but others may yet have a long way to go in the area of *possessions*. Like members of a family trying to divide up a parent's belongings after the funeral, curators sometimes let their humanness show. They may not always be willing to lend, exchange where possible, or otherwise make objects available for study.

Perhaps this is how the "attic" image came to be applied to museums. People are possessive, but not for scholarship; they want to own things, but not for posterity; they are proud of possessions, but not careful of their provenance or thoughtful of their future. And when pride of possession grows cold, they couldn't care less what hap-

Antique oriental paintings being restored at the Freer by curator Takashi Sugiura (right) and Shigero Mikkaichi.

Porter Kier, director of the Museum of Natural History, in front of Bicentennial exhibition, "Our Changing Land."

pens to the objects. So send them up to the attic or send them to the local historical society or museum—what's left, anyway—and that's how museums often inherit their collections. No wonder, then, that the curator, mindful of how this careless largesse has been acquired, may become jealous or secretive or unsharing, determined that his superior knowledge and his possessions will carry their secrets with them to the grave. Such is the very antithesis of rational curation, conservation and care for posterity —even though no curator worth his salt can fail to admit that some of these unworthy thoughts have occasionally passed through his own head.

Thus museums are a growth industry, give or take a few years. Selective as they may be, "growth is the only evidence of life." But such growth is difficult to plan, notwithstanding established priorities. Maybe we will never get a shunting engine or a perfect collection of soft-paste china, but there are other targets of opportunity along the trail. If we had a chance to acquire a collection of portraits of native Americans similar in quality to those painted by George Catlin and acquired in the late 1870s, should we say no because such an unexpected event is not listed among our priorities? At such a moment a proper curator throws caution to the winds and acts as decisively as James Bond with one minute to solve the fate of the world. The curator knows as surely as "007" that in acquiring certain things from time to time, there is no priority. There is only the urgent necessity. Equipped with such powers of discretion, sureness and authority, curators may act as coolly as any great intelligence operative, knowing that what they are after may represent one of the world's precious legacies for the future.

I have referred on occasion to a museum as a social planetarium where past may be delineated, present experienced and future postulated. We hope that an additional natural development for the Smithsonian will be the creation of a flexible area adjacent to the National Air and Space Museum, where some presentment of the future may be exhibited. We would show some of the results of our known technologies for solar energy, water conservation and development of food resources—in general, all that we know or can perceive about life-support systems. As we start our Bicentennial celebration, it is well to look ahead to our Tricentennial, and in the process demonstrate to our citizens some of the implications contained in the concept *limits to growth.*

"Limits to growth" in this sense is not a real phrase. It is merely symbolic, and in proposing it, the authors of the Club of Rome study were suggesting a riddle. Mankind cannot exist without growth, but we would be wise to accustom ourselves to an outlook which stresses the interdependence of our existence as humans on the planet. While nationalism and independence are taken for granted today, the world economy, the use of resources and the interlocking systems by which we live are inevitably becoming supranational.

As the Institution looks back over the last year, one priority clearly emerges. Along with evaluation of our procedures and our growth should come an examination of ways to make ourselves more self-reliant. Only in this fashion can we carry through our objectives in a businesslike and timely fashion. I have always felt that the Congress encourages us to act in such a responsible fashion, and indeed they have. The fact that we are filling in the West Court of the Museum of Natural History with funds that the Institution has raised privately in order to improve the facilities for our visitors, school classes, tourists and Associates alike, as well as provide restaurant accommodations for their comfort, has reminded our Congressional committees that we have an obligation to do this. We can act independently and prudently as we are chartered to do, using private support to achieve goals related to the education and convenience of our visitors. This is a facility which would have taken far longer to achieve if we had used the normal budget review and Congressional appropriations procedures, and it would, therefore, have been inevitably far more expensive. We can be thankful that we have such flexibility.

At every level, locally and nationally, a new awareness of the Smithsonian is abroad. This has come about largely through SMITHSONIAN and other activities of the Associates, which bring people a new understanding of our work and concerns. The local programs of the Associates in Washington now involve some 75,000 people. Our national membership now stands at more than 1,000,000. This means that, for the first time, Americans in a measurable proportion across the land have a feeling of belonging to the Smithsonian and, in

the process, of understanding more clearly their own heritage. For in this awareness they will realize that the Smithsonian belongs to them.

This last year has seen the birth of two additional forms of Institution outreach, one popular and the other of more immediate educational interest to ourselves. The first was an apparently highly successful series of three hour-long TV "specials" in prime time on the CBS network, produced by David Wolper, the celebrated independent producer, and sponsored by Du Pont. The three programs were light, somewhat frothy, and varied from sensational to charming and nostalgic. I enjoyed them as entertainment, as nearly 50 million Americans seemed to do, and I hope others will be produced. As entertainment they can remind the public that the Smithsonian is fun and not merely "good for one," like castor oil. Of course, the more we can remind people that learning is fun and that the Smithsonian is fun, the better.

The second event has been the release of the first of our Encyclopaedia Britannica filmstrips for schools. We hope these will spread across the land and increase the accessibility of our collections to everyone, in the same way that we hope to enlarge our Traveling Exhibition Service, enabling us to circulate objects ranging from prints and pictures to objects of craft and technology.

Thus the Smithsonian will continue to grow and conserve prudently and refurbish what it possesses, mindful of the keenness of perception and judgment required along the way. It is an honorable task, and an onerous one, not easy, for the world finds such skills difficult to understand and their worth hard to evaluate, and there is no school in which to learn except that of experience. And yet this is a task of high priority, for collectors remain one of the few means we have to help the long train of understanding, of communication between generations. If history is transmitted in an institution such as ours, then this not only reinforces and instructs the present, but casts a glimmer of light into the sometimes murky shadows shrouding the future.

S. Dillon Ripley feeds a flock of nene, endangered Hawaiian geese, at the National Zoological Park.

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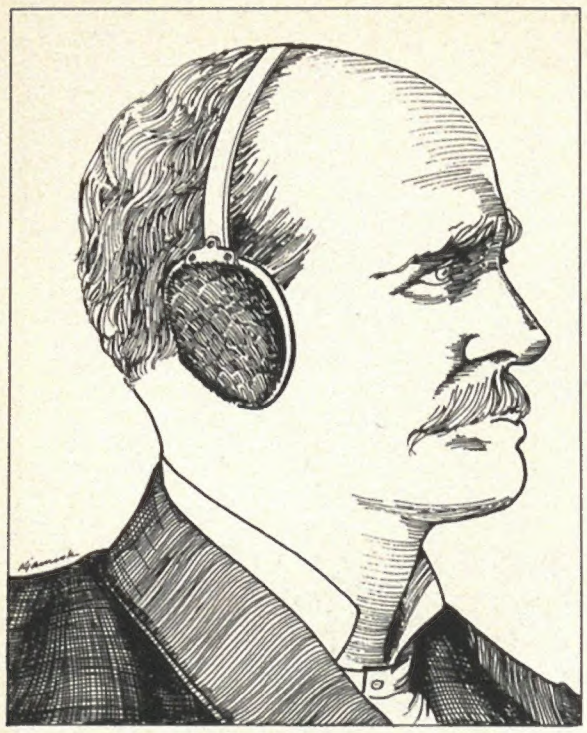

Chester himself from an ad

By Richard Pritchett

How the Greenwood eara *of earmuffs was started*

"No man who has once froze his ears . . . is at all anxious to repeat the experience, for even a slight frostbite on that tender portion of the body is attended with pain of no small intensity. . . . The only practical way to keep the ears from freezing when exposed to such weather as all the northern states are liable to at certain seasons, is to cover them up; but this is easier said than done, or at least it was until Greenwood's Champion Ear Protectors were invented."

That was the Maine publication *Leading Businessmen of Farmington,* paying prideful tribute in 1889 to a local boy who had made good with a device to keep his own tender, 15-year-old ears—and millions of other pairs—comfy no matter how raw the weather.

Necessity mothered Chester Greenwood's revolutionary invention. The teen-ager's ears were the wintertime talk of the town hot-stove set, for they were known to go pale white, then vivid red and finally deep blue if he was caught outdoors when the thermometer went down. Whether his ears burned at all the village talk is not known, but they burned unbearably when he took them out into the Maine winter. To avoid frostbite, Chester glumly stayed home a lot, and going to and from school he ran all the way.

For years Chester had yearned to go skating on a pond near the family farm. And in December 1873, for his combination birthday and Christmas present, he finally got a pair of skates. Actually, they weren't the single blade skates so popular today. They were ice runners purchased at the Farmington hardware store for close to $2, a lot of money in those days. The runners had double blades, and were strapped to the shoes.

So he raced down to the frozen pond with his ice runners, held together by straps, draped over one shoulder. He was eager to whiz around the ice. And whiz he did—but not for long. A cruel wind came out of nowhere, and went to work on Chester's ears. In a matter of seconds, they were a chalky white. As the frustrated skater raced home, they went vivid red and, just as he slammed the front door shut, they turned deep blue.

The next day he left home with a heavy wool scarf tied around his head. His ears were snug, but they were also itchy—so itchy the boy had to turn back before he reached the pond.

No quitter, Chester took thought, and decided to try fur on his ears. He made two ear-shaped loops out of small pieces of wire, and asked his grandmother, who lived with the family, to sew pieces of fur onto them. A few hours later he tested his fur ear covers out on the pond. They worked. His ears didn't bother him a bit.

Thus it was that earmuffs were invented. Chester went skating on the pond several times that winter, and his earmuffs were spotted by Farmington neighbors. In short order, his mother and grandmother were spending all their spare time turning them out.

Young Greenwood quickly realized he had a good thing going for him. In March 1877, at the age of 19, he took out a patent on his invention. It was Patent No. 188,292. By that time, the young man had come up with an improved model. He had attached a spring to his earmuffs, so they could fit over the head, and stay in place. Chester reportedly declared: "I believe that perfection has been reached."

Also by that time, local merchants were selling the ear protectors by the hundreds, and the young inventor had to hire extra workers to turn out his invention by hand. Next he opened a factory. In a short time, Farmington boasted that it was the earmuff center of the world, and Chester Greenwood was its leading citizen.

The earmuffs—also called earlaps—were known to merchants everywhere as Greenwood's Champion Ear Protectors. And Chester sold millions of them over the years. It should be noted that his career was not limited strictly to earmuffs. He established a bicycle business, and was a founder of the first telephone company in Franklin County, Maine.

The inventor also erected a business block in the center of town, known, of course, as the Greenwood Block. In time, Chester had probably the biggest house in Farmington, and he was also the first local resident to own a Stanley Steamer.

During the 1920s—in the era of "... and we haven't any use for red hot flannels" *—earmuffs went out of style for a time. However, they made a comeback in the next decade. In fact, Chester Greenwood's factory was going 24 hours a day when he died in 1937 at the age of 79. Until the human ear itself is improved, Chester's successors and imitators are in business.

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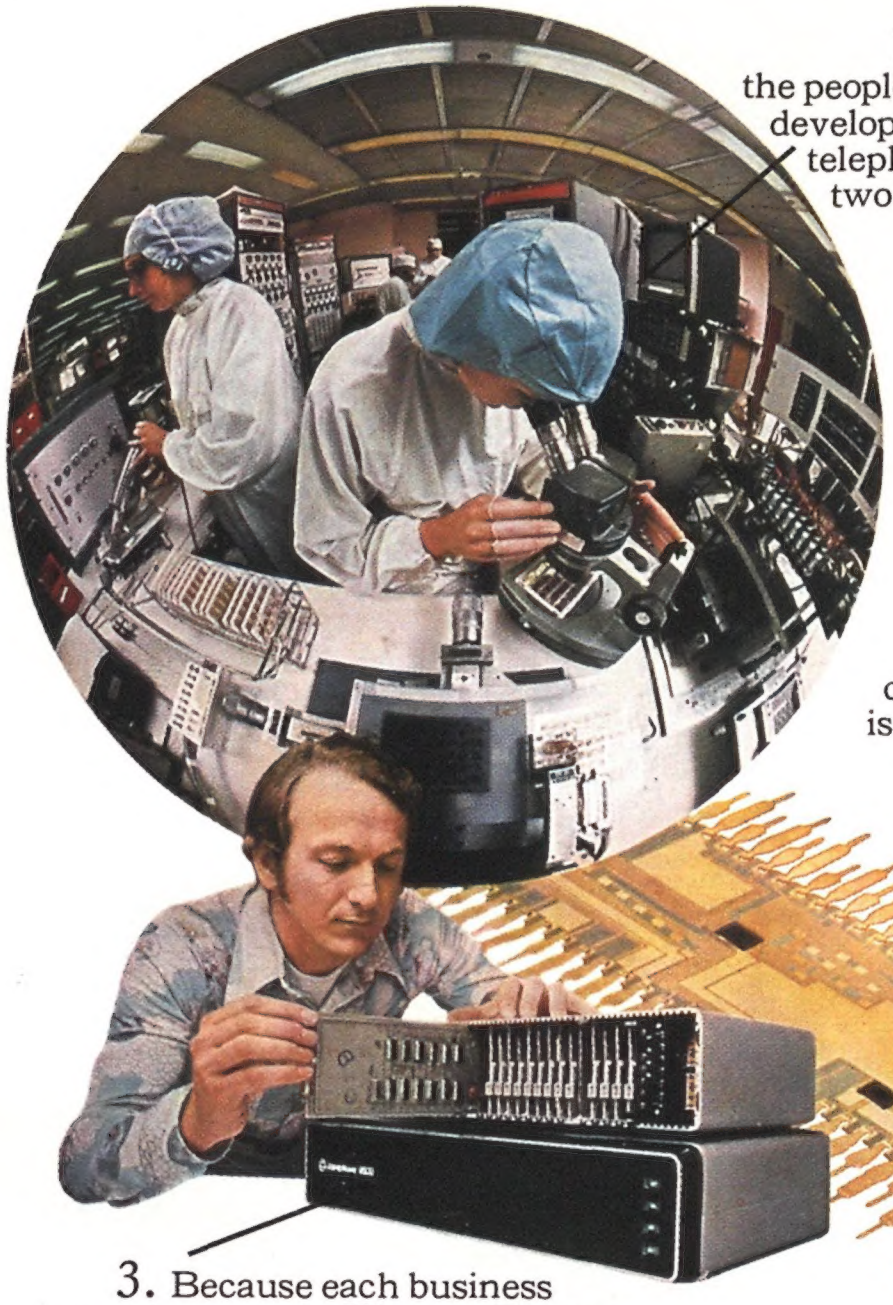
There are still some things Americans know how to do best.



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